OCT 1 2 1943

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THE MEDICAL JOURNAL OF AUSTRALIA

VOL. II.—30TH YEAR. SYDNEY, SATURDAY, AUGUST 28, 1943. No. 9.

COMMONWEALTH OF AUSTRALIA. DEPARTMENT OF HEALTH.

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THE MEDICAL JOURNAL OF AUSTRALIA

VOL. II.—30TH YEAR. SYDNEY, SATURDAY, AUGUST 28, 1943. No. 9.

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PLANTS, INCLUDING FUNGI, POISONOUS OR OTHERWISE INJURIOUS TO MAN IN AUSTRALIA.

SERIES IV.

By J. BURTON CLELAND, M.D.,
Marks Professor of Pathology, University of Adelaide.

IN *The Australasian Medical Gazette* for June 20, 1914, the first of a series of papers dealing with records of plants in Australia injurious to man was published. A second paper appeared in THE MEDICAL JOURNAL OF AUSTRALIA on Ocotber 10, 1925. The third number of the series appeared in the same journal on December 19, 1931, at page 775. The present paper, the fourth, deals with further references that have been accumulated during the last twelve years.

Plants Injurious on Ingestion.

Nuts and Leaves of the Cycad, Macrozamia Macdonnellii.

On April 15, 1860, in the Macdonnell Ranges, John McDouall Stuart,[1] the explorer, stated that two of the party who ate some of these cycad nuts vomited violently. He himself ate one, but it had no bad effect upon him. At Owen Springs, also in the Macdonnell Ranges, on March 19, 1861, Stuart[1] records that Lawrence "ate the lower end of one of the leaves, and found it sweet—resembling sugar-cane; he ate a few inches of it, and in about two hours became very sick, and vomited a good deal during the evening".

Ill Effects from Eating Gum from a Nut-Tree.

John McDouall Stuart[1] records that on June 9, 1861, at Daly Waters, Mr. Waterhouse "last night was seized with a violent pain in the stomach, which was followed by a severe sickness, and continued throughout the night; this morning he is a little better. I think it was due to eating some boiled gum from a nut-tree. When boiled it very much resembles tapioca, and has much the same taste. I also ate some of it yesterday, which occasioned a severe pain in the stomach, but soon went off. Some of the others slightly affected; some not at all and continue to eat it". Waterhouse looked so ill that they camped that day. Identification of the "nut-tree" has not been made.

Possible Ill Effects of the South African Milk Bush (Synadenium Grantii).

Mr. C. T. White, Government Botanist, Queensland, has informed me that in February, 1943, a male infant at Barcaldine, according to his father, "took convulsions and was very ill for a week"; a small piece of leaf of the South African milk bush was taken from the baby's mouth when the fits first came on, and no other cause was apparent. This plant is closely related to the genus *Euphorbia*, and has a similar milky juice. It is widely grown as an ornamental plant in the tropics. Many plants of the Euphorbia family have an irritant poison; but there seems to be no record against this plant. It is possible, if there is any connexion between the convulsions and the leaf found in the baby's mouth, that the plant was acting more or less as a mechanical irritant rather than as a specific poison.

Death from Eating the Rhizome of the Cunjevoi (Colocasia Macrorrhiza).

In 1929 a child, aged two years, died after eating the rhizome of the cunjevoi. The Government Analyst of New South Wales, Mr. W. M. Doherty,[2] considered that, though oxalate of lime crystals were found, death was attributable to some other unknown ingredient.

Poisoning by Toadstools (Agarics).

Dr. W. H. Nelson, writing to me from Subiaco, Perth, in 1932, has given me the following full account of severe symptoms occurring in May, 1921, in two persons who had mistaken poisonous toadstools for mushrooms.

J.P., æt. 22, and his wife, E.P., æt. 25, on May 23, 1921, breakfasted on fungi that they collected under the impression they were mushrooms. He ate a lot, she not so much. On finishing, she said she felt a little sick, and wondered if they were all right. Then about half an hour later, each began to water profusely at the mouth with nausea; this kept on for quite half an hour, and then colic set in with symptoms of collapse, profuse sweating, and cold clammy skins. Each took salt and water and vomited up some of the stuff. I was sent for and arrived about 10 minutes later (11 a.m.) to be greeted by the husband on the veranda, wiping cold sweat off his face, deathly white, inclined to be shivery, and he said he was quite all right (!) I sent him to bed at once, then looked at the wife. She had just recovered from a rigor, was very white, saturated with cold sweat, and clammy to the touch. Her pulse was 96, pupils of eyes normal, feeling sick still, no more colic. I gave her Atropin. Sulph. gr. $^1/_{50}$ hypodermically, then went to the husband, and found him in much the same condition, pulse 60, an important sign of muscarin poisoning, pupils normal. I gave him Atrop. Sulph. gr. $^1/_{50}$ hypodermically. I then gave him a pint of strong Sod. Bicarb. solution to drink, a heaped up dessert-spoonful in a glass of water, in the hope that it would make him sick, but as it did not, I gave him, by mistake in the excitement of the time, Pilocarp. Nit. gr. $^1/_{10}$ (hypodermically), and as a "sweater" this came a bad second to Muscarin. A few minutes later I realised my mistake and gave him Apomorph gr. $^1/_{10}$, and in 5 minutes he vomited up all the soda solution and big chunks of fungus as well as smaller pieces. He looked very collapsed, puffy under the eyes and white, so I gave him Strych. gr. $^1/_{30}$ and this pulled him round. I then gave his wife soda solution to drink and Apomorph. gr. $^1/_{10}$, and she also vomited up quite a large quantity of fungus, much in various sized chunks. She did not need any Strych. While she was vomiting she could not breathe, and the choking sensation caused rapid spasmodic movements of the feet so that she tore the sheets to pieces (reminds me of the description of the murder of the old woman in the book "The Murder at the Villa Rose"). At 11.45 her pulse was 112, while his was still 60. I left them when I saw that they had rallied round and were warm and returned in an hour's time, and now both had the same pulse, 108; pupils well dilated. At 5.30 p.m. both pulses were 74, and they felt quite well, so they were given Ol. Ric. oz. i in hot coffee. Next day both were quite all right, only complaining of dry throats, due to a mixture containing belladonna.

The Government Botanist reported that the fungus was called *Amanita Preissii* and was closely related to the Siberian *Amanita muscaria* used by the Siberians instead of Vodka.

Later the husband stated that his vision was blurred at the time I arrived, and had been so for about an hour before and passed off after the vomiting. The wife had no blurring of vision, but after the vomiting was over and she was quiet in bed, she could only see half of her mother's face, but both the eyes seemed to be on that side she could see. This condition passed off after about half an hour.

Dr. Nelson considered from the symptoms that the species responsible was probably an *Amanita*. The scarlet warty cap of *Amanita muscaria* could hardly be gathered as a mushroom; but we have several other species of *Amanita* in Australia. Some are white and not unlike a mushroom, but as yet we do not know which of these, if any, is poisonous. This can be ascertained only by actual ingestion. Hence the importance, in any unfortunate case of mistake in collecting mushrooms, of identifying the toadstool responsible for the illness. A full description of other specimens from the locality and of portions vomited should be made, including colour, nature of attachment of the gills, scaliness or otherwise of the cap *et cetera*. The specimens should then be dried rapidly in a current of air and sent to one of the botany departments of our universities or national herbaria. The genus *Amanita*, some of whose members are highly poisonous, is characterized by having white spores and usually white gills; the cap is readily separable from the stem, and there is a ring on the stem and a cup at the base of the stem.

Plants Injurious by Inhalation.

Smell of a Crinum Lily Causing Vomiting.

F. M. Bailey[3] states that he gave the name *Crinum pestilentis* to a species of lily from the Bulloo River in south-west Queensland, "from the fact that persons camping in places where it is flowering in quantities being apt to be seized with violent vomiting. I have myself felt unwell from the odour of a single flower in a room".

It is hard to see how this vomiting can be due to any toxic substance inhaled. Presumably the effects are psychological.

Plants Containing Poisonous Alkaloids.

Leaves of Datura Species.—I am indebted to Mrs. Rodway, of Hobart, for informing me of the occurrence of this case, and to Dr. C. Duncan, of the Commonwealth Health Laboratory, Hobart, whose little daughter was the victim, for giving me such full particulars of it. The identification of the *Datura* has been difficult, as this garden form apparently does not set seed. The dried flower is elongated tubular in shape, 7·5 inches (19 centimetres) long, 1·75 inches (3 centimetres) wide at the end, beginning to contract just above the middle to a "stalk" only a few millimetres in diameter. The leaves are 7·0 inches (18 centimetres) long and 2·25 inches (7·0 centimetres) wide, the stalk being long, the apex rather pointed and the outline faintly but broadly toothed. Miss C. Eardley, of the Department of Botany, University of Adelaide, considers it probably *Datura metel* or close to this, the most common garden form with flowers variable in colour. Dr. Duncan's statement is as follows.

The patient, a little girl, just under 3 years of age, ate a number of leaves (probably about 6) during the morning, the exact time unknown. At 12.50 p.m. she refused her dinner and then vomited with dry retching only. By about 1.10 p.m., the pupils were dilated and delirium was present. I saw her at about 1.25 p.m., and by then the pupils were widely dilated, the mouth dry, and spasmodic delirium was present. This latter took the form of sudden crying out and grabbing at the air and bed clothes. Between the spasms she would lie fairly quietly if nursed. The spasms seemed to come on about every 5 minutes. Later these became more frequent and more violent until at about 2.20 p.m. they were almost continuous. Morphine gr. $^1/_{20}$ was given at 1.30 p.m. to quieten her during transit to the Royal Hobart Hospital. I saw her at 2.20 p.m. and she did not then know either her mother or myself. She was given a stomach wash-out, using tannic acid, and much chewed up leaf matter was obtained. About 4 p.m. she vomited up more leaves. Bromide, but not morphine, was given as a sedative. Oxygen was available, but not found necessary. The temperature was 98° F. Pulse 110-120, Respirations 24-26.

I next saw her at 10 p.m., when the same symptoms were present but much milder, and she recognised me enough to say "Good-night, dad". She slept well, and returned home next morning. Leaves were seen in the motions for about 2 days.

I am enclosing a dried leaf and a flower of the plant, and can forward you plenty of dried leaves if you want them for analysis. It took quite a lot of detective work to find out that she had eaten leaves, and a lot more to identify the likely poison content—apparently Belladonna and Hyoscine.

I believe that there are quite a number of similar plants around Hobart, and as the leaves are almost tasteless they are a danger to young children.

Plants Producing Urticarial Wheals.

The Giant Stinging Trees, Laportea Gigas, Laportea Moroides and Laportea Photiniphylla, and the Irritant Pollen of Laportea Moroides.—F. Ratcliffe in "Flying Fox and Drifting Sand",[4] considers that the sting of the northern Queensland *Laportea moroides* in the Atherton district is even more severe than that of *Laportea gigas*. In worming his way through the scrub towards a flying-fox camp, he accidentally stroked his bare forearm from the elbow almost to the wrist against the edge of one of the leaves of *Laportea moroides*. The part affected was at first very painful, and still remained painful for the rest of the day and part of the next. A tingling itch was felt for a fortnight, and even three months later the tingle returned whenever the arm was bathed in cold water. According to a friend, who had once fallen headlong into the foliage of a freshly felled tree, he had to be taken to a doctor, who found it necessary to administer morphine.

The pollen of *Laportea moroides*, Ratcliffe states, drifting far and wide through the forest at certain times of the year, acts like an irritant snuff causing violent sneezing. Men working in the forest with brush-hooks may require masks.

Bernard O'Reilly in "Green Mountains"[5] gives the following description:

> The Gympie stinging tree, or Gympie Gympie, as it is called by the blacks, is readily identified by its huge dinner plate leaves a foot across. The leaves and young stems are hairy with transparent, stinging spines and contact with them is as painful as a scald with boiling water; the agony is not confined to the injured spot, it is just as intense in the underarm, neck and groin glands, which also swell noticeably. The most popular antidote is the juice of a beautiful calla lily, the cunjevoi, which, strangely enough, always grows around the foot of the Gympie; our boys, however, established that the "tail of the dog that bit you"—the sap of the tree itself—is far superior. The invisible sting barb which is embedded in the skin of the victim, is a tiny funnel filled with venom, so that for many days after the first agony has abated, if the injured part is dipped into water, more poison will be forced through the small end of the funnels into the flesh, and thus the pain may be restarted at any time up to a fortnight. . . .
>
> In the lower gorges there is yet another stinger, a small tree with glossy leaves like a hydrangea, which inflicts a very painful sting. After the rainy season these leaves lose most of their barbs, so that during the winter they are fairly harmless.

A reference to Mr. C. T. White, Government Botanist, Queensland, has brought the following reply:

> The Gympie Stinging Tree or Gympie Gympie referred to by Bernard O'Reilly is *Laportea gigas*. The one he describes as growing in the lower gullies with glossy leaves like the Hydrangea is the Shining Leaved or Mulberry-leaved Stinging Tree (*Laportea photiniphylla*). The name Gympie more correctly belongs to *Laportea moroides*, but this species does not occur in Mr. O'Reilly's area, though it is very common a little further north and is the common species on the Atherton Tableland.
>
> In conversation once with a farmer in the Proserpine district in North Queensland he told me that when horses get very badly stung, instead of rushing about in agony they become absolutely paralysed and incapable of movement. There has recently been much concern about these plants, especially *Laportea moroides*, which is the common one in North Queensland and absolutely smothers some of the new clearings and rain-forest tracks.

Plants Causing Inflammation or Irritation of the Skin and Conjunctiva.

Dermatitis from Dogweed (Cassinia Aculeata = Quinquefaria).

The dogweed is well known as a cause of irritation of the skin. Dr. C. Badham[6] has reported that in December, 1933, two men employed near Bega were affected with dermatitis when engaged clearing a hill of "dogweed". One was "only slightly affected on his arms, but was right again after a couple of holidays". The other man had worked for six weeks and had noticed the rash for some little time before notifying his employer and reporting to Dr. Cummins, of Bega, who found an eczematous condition of the arms and legs, together with traumatic conjunctivitis.

The employer of the two men, in a letter to the insurance company after the second man had been affected, made the following statement:

> I decided then to leave this work till the flower had gone off it, as I suspect it may be from it. It is remarkable that, although I have heard of this particular shrub affecting men before, yet both these employees have done much of this work previously, both with me and others, and they say it never affected them before.

In Tasmania recently, Mrs. Rodway informs me, a mill worker developed an acute rash on his legs and arms and inflamed eyes from contact with *Cassinia aculeata*. Dr. Bain Drake sent her the plant for identification, and confirmed his suspicion that this was responsible for the rash by applying it to the patient.

T. Rayment,[7] in his book on Australian native bees, states that bee farmers itch from propolis made from pollen from this source. Workers in *Cassinia* scrub get this itchiness, and when large quantities of propolis are present in the hives, bee farmers may also be affected with itchiness.

Dermatitis Due to Stinkwort (Inula Graveolens).

The late Dr. J. MacPherson[8] has recorded the case of a family, three of whose members (the father, aged forty-seven years, and two sons aged twenty-two and eighteen years) had suffered from *dermatitis venenata* from handling stinkwort. The face was severely affected, pruritus was intense and constitutional symptoms were present. The condition lasted for eight, twelve and fourteen days respectively.

Pyrethrum Dermatitis.

Dr. C. Badham, in his report as Medical Officer for Industrial Hygiene,[9] has described "an outbreak of dermatitis due to *Pyrethrum* used in the manufacture of kerosene fly killer" which occurred in a drug warehouse. The *Pyrethrum* ground consisted of several species of Japanese chrysanthemum; it is a well-known cause of dermatitis among susceptible subjects exposed to the dust.

Rash Attributed to Azaleas and Rhododendrons.

Mrs. Rodway, of Hobart, has mentioned to me an instance in which a man had both arms covered with a rash from cutting azaleas and rhododendrons.

Teak Dermatitis.

Surgeon-Lieutenant L. H. Genge[10] records the case of a joiner at Garden Island, Sydney, who developed an erythematous rash of both cubital fossæ and on the neck with extreme irritation and bilateral œdema of both eyelids after working for a month with teak. The œdema lasted for a week and the erythema for three weeks. During the preceding five years he had worked at intervals on teak, the longest period being for four days; but no rash had appeared. After he had been cured, teak sawdust applied to the cubital fossæ caused the dermatitis to reappear within two hours.

Dermatitis and Various Ill Effects Due to Other Types of Wood.

In the annual report of the Queensland Forest Service for 1924,[11] a number of types of wood are listed as having injurious properties in replies to a Forest Service circular sent to various forest officers. In the following extract (Table I) it will be seen that the replies are often vague and the nature of the injurious effects not clearly stated. Mr. M. B. Welch, of the Technological Museum, Sydney, just after the publication of the third series of these notes, informed me that several cases of dermatitis had been reported to him as being brought about by working with the silky oak, *Cardwellia sublimis*, only certain persons again being affected. In a local factory he knew of a man who developed a severe skin eruption from handling Queensland maple (*Flindersia Brayleyana* and *Flindersia Pimenteliana*).

Mulga Sores and Gum Tree Splinters.

As suggested in Series III, it is probable that the cause of suppuration from splinters of mulga and other woods is facilitated by a deficiency of fresh foods in the interior and by a reduction in the amount of vitamins *A* and *C* available. That splinters of mulga wood (*Acacia aneura*) are not necessarily poisonous, the following personal experience testifies.

> In August, 1933, on returning from an expedition to Ernabella in the Musgrave Ranges, I was sitting in the back of a truck facing the way we had come. Swinging round to look ahead, I did so as we approached a dead mulga, and a large splinter an inch long from this was buried obliquely in the right side of my face, the end impinging on the bone of the orbit. I did not know at the time that a piece of wood had been left behind, though the pain and discomfort were considerable. Two days later we reached Oodnadatta, the wound now giving little trouble. Two days later again, Adelaide was reached. Next day, Sir Henry Simpson

TABLE I.

Botanical Name.	Common Vernacular Name.	Remarks.
Blepharocarya involucrigera	Bolly gum	North Queensland forest officers are unanimous in stating that this is poisonous if rubbed on the skin.
Garcinia Gibbsæ		The exudate of this tree is said to cause blood poisoning.
Acacia harpophylla	Brigalow	Workers in Ipswich railway workshops state that this tends to cause eczema if much of it is used.
Dysoxylon Muelleri	Red bean	Causes sneezing and irritates the nose when being dressed.
Flindersia australis	Crow's ash	Sometimes objected to slightly by mill hands.
Castanospermum australe	Black bean	Said to have a strong tendency to be poisonous when in a green state.
Canarium Muelleri	Scrub turpentine	Sap reputed poisonous when it enters a cut.
Cardwellia sublimis	Silky oak	Several state that this affects them. No complaints are made by workers of dry wood.
Acacia parpinata	Rough-barked wattle	An officer reports that these cause skin trouble leading to blood poisoning.
Eucalyptus terminalis	Bloodwood	
Eugenia gustavioides	Water gum	
Halfordia sclerocyla	Ghittoe	
Erythrophlæum Laboucherii	Cooktown ironwood	Bark and wood reported to be very poisonous to stock.

Newland probed the wound, and to his surprise found a foreign body in it, a sliver of wood one and a half inches (3·7 centimetres) long, easily removed by forceps. Anti-tetanic serum was now given. The wound healed readily. A minute thickening remained at the edge of the orbit. In 1942, this swelling began to increase a little in size up to the size of a pea and to become slightly tender. Finally, Dr. Messent cut down upon it under local anæsthesia and found a fibrotic nodule attached to the bone. In the nodule were several small fragments of wood. Examination of sections disclosed fibrosis and some foreign body giant cells.

Nothing could illustrate better than this that mulga wood is not poisonous in itself.

R. T. Maurice,[12] in his exploration from Fowler's Bay to the Rawlinson Ranges, records that on July 1, 1901, his "hands are in a frightful state, all the fingers being swollen up and covered with sores. He attributes it to mulga poisoning, and it is somewhat remarkable that sores do not, as a rule, heal readily when living in mulga country".

Dr. W. H. Leigh[13] has a South Australian reference in August, 1837, to splinters from gum trees (eucalypts) causing severely festered hands.

Plants Causing Asthma and Hay Fever.

Asthma and Hay Fever Caused by Plane Tree Leaves.

Dr. David Zacharin[14] reports the case of a man, aged thirty-five years, who always developed hay fever and attacks of an asthmatic type when pruning plane trees in a Melbourne suburb during the summer. Other trees did not affect him, nor did plane trees at other times of the year. On examination of the leaves of the tree, it was found that in summer the leaves were covered with a downy material. Scratch tests with the downy material, with the seed ball and with grass pollen extracts produced a positive reaction only with the first-named.

Hay Fever and Urticaria from the Smut on Prairie Grass.

Prairie grass (*Bromus catharcticus*, usually called *Bromus unioloides*) is frequently affected with a smut (*Ustilago bromivora*). Mr. H. Goldsack, of Coromandel Valley, South Australia, tells me that this smut in his case "causes severe hay fever and raises wheals on any portion of the body that may be scratched. One smut body in a glass of water gave a solution which gave rise to large wheals when applied to skin that had been broken".

Sneezing Caused by the Timber of Villaresia Moorei.

Mr. M. B. Welch, of the Technological Museum, Sydney, has informed me that *Villaresia Moorei*, a New South Wales timber, causes sneezing; it is apparently due to the dust.

Asthma from Eating the Nuts of the Bunya Bunya Pine (Araucaria Bidwillii).

The late Dr. R. H. Pulleine, who practised for a while at Gympie, Queensland, informed me of a case of asthma caused by the ingestion of the nuts of the bunya bunya pine.

Injuries from Burrs and Grass Seeds.

Bathurst Burr in the Right Main Bronchus.

Dr. N. H. Meacle,[15] in 1935, before the New South Wales Branch of the British Medical Association, showed a girl, aged five years, who had been admitted to the Royal Alexandra Hospital for Children with a vague history of having "swallowed" a grasshopper three weeks previously. Cough and occasional distressed breathing had been present ever since. Coarse and musical rhonchi were present in the right interscapular region. X-ray examination suggested the presence of a transradiant foreign body in the right bronchial tube. This was seen by means of the bronchoscope, and proved to be a Bathurst burr surrounded by and incorporated in gross inflammatory reaction. The foreign body was removed with forceps and the child made a quick recovery.

Black Oat Seeds.

The late Dr. John MacPherson[9] has recorded the presence of seeds of black oats (*Avena fatua*) in the conjunctival sac, nasal cavities and external auditory meatus.

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AN OPERATING FRAME ON A NEW PRINCIPLE.

By MERVYN HALL,
Toowoomba.

THE usefulness of a self-retaining retractor or operating frame is shown by the fact that, in spite of its cost, there is scarcely a hospital or surgeon without one. In Australia, the most widely known instrument is the invaluable Devine operating frame, which has been used almost in its present form for over twenty years.

There are a number of drawbacks, however, inherent in most frames in current use, which decrease their usefulness. Some of these drawbacks are set out hereunder.

1. The frames bristle with projections of all sorts—lugs, rings, projecting ends, hooks, butterfly nuts and so on. When suturing with a slack loop, it is difficult to prevent the loop from being caught in these projections. It is no uncommon thing to have to stop a dozen times during an intestinal anastomosis and disentangle the thread from some part of the operating frame. The projections likewise catch in the surgeon's gloves, and they have even been known to tear the bowel or other viscera.

2. Another major drawback is that in the majority of the frames the arm which holds the retractor is fixed to the frame by an attachment which has a limited number of positions, each position separated from the next by half to three-quarters of an inch. This is not of great importance in the primary retractors which are used for holding the wound apart, but it is sometimes of considerable importance when the secondary retractor (intestinal retractor or "mechanical hand", as it has been called by Devine)[1] is concerned. In such cases either the "mechanical hand" is too tight on to the side of the wound in one position, or else it projects too far in towards the area of operation on the other. This causes some difficulty, especially when the liver is being retracted. If retraction is too tight, the liver substance is contused and bruised; if retraction is not sufficiently tight, the liver is not held out of the way sufficiently, and the "mechanical hand" projects unduly into the area of operation.

3. Although most instruments will function well when new, in some wear takes place after very little use. This applies particularly to those instruments which depend for their action on short wedges. After little wear these wedges become so loose that they will not hold the retractor. Shortly after an operation has commenced the retractors loosen and become detached; the intestines which have been held aside billow back into the wound, and the surgeon has to stop and re-affix the retractor.

4. In some operating frames, retractor arms are fixed to the frame at an angle and are held by wedging action, the wedge being one with a small area. The slightest movement of the frame, even the normal respiration of the patient, will cause this small wedge to be dislodged, with the result that the retractor arm slips on the frame, loosens, and allows the retractor to alter its position. When a square frame is used, only the four primary wound retractors or "mechanical hands" are at right angles to the frame. The intestinal retractors or "mechanical hands" are necessarily held obliquely, and any pull along the arm of the retractor tends to slide it to a central position on the side of the frame. The "mechanical hand" swings back into the wound and usually comes completely adrift. A circular or oval frame, in which all retractors are approximately at right angles to the frame, will overcome this difficulty.

5. A drawback of some instruments is that they are complicated and their principles require to be thoroughly understood before they can be used. More than once it has been noticed that surgeons who have been using an operating frame for years are not getting the full benefit from it because they have not understood the principles involved. These principles could be explained by the makers when the instrument is sold, but such is usually not the case.

6. The adjusting of some frames requires a good deal of manœuvring, and they consume an unreasonable amount of time before they are satisfactorily in position.

7. In the square frames, the corners of the frames and the areas adjacent to the primary wound retractors cannot be used for attachment of the "mechanical hands". This fact reduces to half the portion of the circumference of the wound in which "mechanical hands" can be used.

8. Some frames have an appreciable "depth", and in effect place the part to be operated on at a distance of half an inch to one inch deeper than if they had not been used.

Principles to which Operating Frames Should Conform.

Consideration of the foregoing drawbacks suggests that certain desirable general principles, applicable to all operating frames, could be enunciated. These may be set forth as follows:

1. All parts of the frame should be smooth and rounded, without any projections of any kind, so that in use threads can be laid over the operating frame in any direction, and when lifted will not catch in the frame. The surgeon's gloves and the patient's viscera will also be safe.

2. The arms which hold the wound retractors, intestinal retractors or "mechanical hands", should be capable of being fixed in any position in their length from the centre of the wound to the fullest extent to which they can be withdrawn. There should be no appreciable steps or stages in fixing the retractor arms.

3. To prevent the retractor arm from twisting or swinging on its area of attachment to the frame, the arm should at all times be at, or nearly at, right angles to the frame, at the point of attachment. This can be best achieved by the use of a circular frame. No matter how carefully the surgeon attempts to avoid tension in his wound, in actual practice there is always a certain amount of tension acting along the retractor arm. If the retractor arm is attached obliquely to the frame, this tension will also act obliquely to the frame, and the slightest movement will tend to dislodge the retractor arm and move it to a position where it will be at right angles to the frame. In actual practice, this suggests that as the arms usually radiate from the centre of the wound, the operating frame should be a circular one.

4. The frame should be such that there is no position around the wound where it is impossible to attach a retractor or "mechanical hand". It is also desirable that fixation shall be equally secure in all positions. In square frames there must be areas which cannot be used for attaching retractors, and fixation is weakest near the corners; in oval or circular frames, any position around the circumference can be available and fixation can be equally firm in all positions.

5. Simplicity in principle is essential. Little time and effort should be required to assemble the instrument.

6. When once fixed, the instrument should "stay put" for the rest of the operation.

7. Mechanical wear should not affect the efficiency of the instrument.

8. Any part liable to breakage should be easily replaced.

9. The instrument should lie flat against the patient's abdomen, not appreciably increasing the depth from the surface of the part to be operated on.

Description of a New Operating Frame.

In order to overcome the drawbacks previously mentioned, and to comply with all the foregoing general principles, an operating frame which incorporates a new principle has been designed and is now described and illustrated. It consists of the following parts (Figure I): (i) a circular frame, ten inches in diameter and three-quarters of an inch wide, of wedge-shaped section, the angle of the wedge being 6° (*K*); (ii) three small wound retractors (*A*) (two are shown lying flat, one is on side view); (iii) a large wound retractor (*B*); (iv) five retractor arms which carry detachable "mechanical hands" (*C*); (v) four different types of "mechanical hands" for retracting the bowel in abdominal operations (*D*); (vi) a long "mechanical hand" especially useful for retracting bowel in the paracolic gutter (*E*); (vii) two small "mechanical hands" especially designed for retracting the liver (*F*); (viii) three retractors for use in operations on the urinary bladder (*G*); (ix) a detachable retractor made of malleable copper useful in operations on the urinary bladder and also in the abdominal cavity (*H*).

This instrument has been designed to comply with all the conditions laid down earlier. A number of retractors have been made with oval or circular frames, one with a circular frame having been designed and used by Sir Alan Newton, of Melbourne.

The essential part of the instrument here described is a small sleeve, which is used for attaching the retractor arm to the circular frame. The construction and use of this sleeve are illustrated by Figures II, III and IV. This small sleeve surrounds the retractor arm, allowing the arm to slide freely backwards and forwards through it.

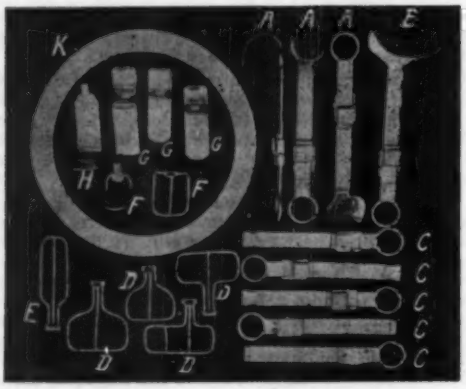

FIGURE I.
The complete instrument. *A*, *A*, *A*: small wound retractors (one on edge); *B*: large wound retractor; *C*: retractor arms for "mechanical hands"; *D*: detachable "mechanical hands"; *E*: "mechanical hands" for paracolic gutter; *F*: "mechanical hands" for the liver; *G*: bladder retractors; *H*: malleable copper retractor; *K*: circular frame.

On the edge of the retractor arm there are a number of notches spaced one-sixteenth of an inch apart (see Figure II). Recessed into one side of the sleeve, a flat spring is fitted in such a manner that when the retractor is pulled away from the wound it slips over the notches, but if an attempt is made to pull the retractor in the opposite direction, towards the wound, the spring catches in the

FIGURE II.
Small primary wound retractor attached to the circular frame seen from the right side, showing the flat spring on the sleeve and the notches on the retractor arm into which the spring fits.

notches and fixes the retractor arm rigidly to the sleeve. The spring and notches are so made that the stronger the pull towards the wound, the more firmly does the spring fix the retractor arm. The notches are shallow and smooth and can be handled with complete safety with the gloved hand.

On the opposite side of the sleeve to the spring is a button almost flush with the surface (see Figure III). From this button a rod passes through the sleeve on the under side to the spring (see Figure IV). Pressure on the button releases the spring and allows the retractor arm to slide backwards and forwards freely in the sleeve. The

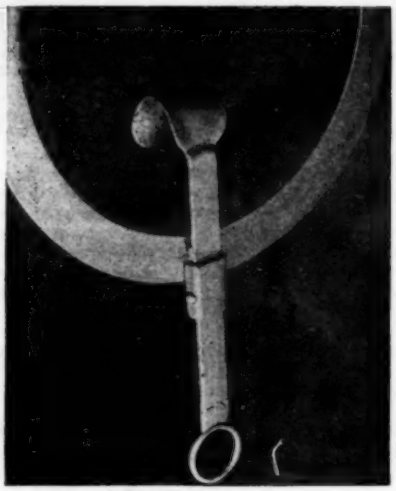

FIGURE III.
Same as Figure II, but seen from the left side, showing the button which releases the spring.

moment the pressure on the button is relaxed, the spring falls into one of the notches and fixes the retractor rigidly in the one direction.

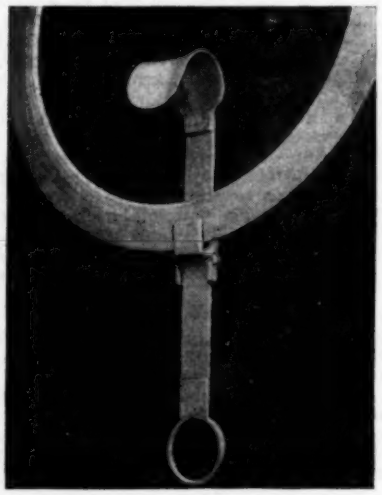

FIGURE IV.
The same as Figure III, seen from below. The plate on the under surface of the sleeve is shown pressed onto the frame. The button can be seen, with a rod passing from it under the retractor arm to the end of the spring. It can be seen how pressure on the button lifts the curved end of the spring out of the notches on the retractor arm.

To attach the sleeve to the frame, the under surface of the sleeve has a plate (see Figure IV) attached in such a way that it forms a slight angle (6°) with the under surface of the sleeve. The circular frame which holds

the retractors is wedge-shaped in section to the same angle, the thin edge of the wedge being on the outer circumference. If the sleeve is placed on the outer edge of the circular frame with the plate underneath it, and then pressed towards the centre of the circle, it grips the frame tightly by a wedging action. As the area in contact is large, this grip is sufficient to hold rigidly to the frame the sleeve, which carries the retractor arm.

Figure V is a photograph of the frame being applied to an abdominal wound and shows how this is done. The wound has been covered with skin towels, the circular frame has been laid on the wound, the top (flat) side being uppermost. One primary wound retractor has been applied and the other is being attached to the frame. The illustration shows how the sleeve is first slid up to the outer end of the retractor near the ring, and then laid onto the frame, so that the plate under the sleeve is hooked around the outer edge of the circular frame. The fingers and thumbs of both hands are then used so as to apply firm pressure between the ring on the end of the arm and the circular frame. This firm pressure drives the wedge-shaped frame between the under surface of the sleeve and the attached plate and fixes it there.

FIGURE V.

Method of attaching the sleeve to the frame. The sleeve is moved to the end of the retractor arm, the retractor is placed in the wound, and the plate on the under surface of the sleeve is hooked on the outer edge of the circular frame. The ring is then grasped with both index fingers, and firm pressure between them and the thumbs applied within the circular frame forces the sleeve firmly onto the frame.

Although operating frames are intended to be used without tension on the wound, there is always a little tension. This tension acts so as to draw the sleeve carrying the retractor arm still more firmly onto the frame, and in use fixes it so rigidly that it cannot come apart unless taken apart in the correct manner. This correct manner consists of pressing on the button to release the retractor and sliding it towards the centre of the wound, thus freeing it from the wound; the ring at the end of the retractor arm is then grasped with the hand and rotated or swung tangentially to the circular frame. This immediately releases the grip of the plate under the sleeve from the frame, and the sleeve, with the retractor, can be lifted off the frame.

It is not to be inferred that the tension of the wound holds the sleeve onto the circular frame. Quite the opposite is the case. It is essential in using the frame that in applying the sleeve to the frame very firm pressure between the fingers and the thumbs be used, in order to secure a grip on the frame. Unless this pressure is really firm, the sleeve will merely be "hooked on" and will be loose, wobbly and unsatisfactory.

Methods of Use.

There is hardly an abdominal incision or operation in which this frame cannot be used with advantage, and in many cases it makes a great difference to the ease with which the operation can be performed. In many operations exposure of the area to be operated on, and the retraction of bowel away from the area, are equal to that obtained with any other operating frame; in the majority of operations this exposure and retraction are considerably more satisfactory. Moreover, the retractor, when once applied, remains exactly as applied for the duration of the operation.

In general it can be used in almost the same way as the Devine operating frame as described by Devine,[1] three small wound retractors and one large one being employed. In Figure VI the use of the operating frame in this manner is illustrated in a suprapubic wound. Three small

FIGURE VI.

The operating frame used in the conventional manner in a suprapubic wound to expose the uterus and adnexa. Three small wound retractors (*A*, *A*, *A*), one large wound retractor (*B*) and two "mechanical hands" (*D*, *D*) are used.

wound retractors (*A*, *A*, *A*) and one large wound retractor (*B*) are used in the conventional manner, and two "mechanical hands" (*D*) are used to retract the bowel. Excellent exposure of the uterus and adnexa is obtained, in spite of the fact that only a small transverse suprapubic (Pfannenstiel's) incision was used. It can be clearly seen from the photograph how every portion of the circular frame which is not actually occupied by a retractor arm is available for the application of "mechanical hands". But it can also be seen that the wound retractors actually occupy the major part of the circumference of the wound itself. This interferes somewhat with the use of the "mechanical hands", as although retractors can be attached to any part of the circular frame, there is but little space around the circumference of the wound in which to apply "mechanical hands" without their overlying the wound retractors. By the use of a circular frame this handicap can be eliminated; it is possible to dispense with the large

wound retractor (*B*) and utilize only three small wound retractors placed at approximately equidistant points around the operating frame, as illustrated in Figure VII. This arrangement results in one of the major advantages of this operating frame; it provides for a great variety of uses and makes it possible to adapt the frame to the varying conditions of different operations.

It has been found by experience that this "triangular" type of retraction is the most suitable for almost all abdominal operations. Figure VII shows a similar transverse suprapubic wound, in which three primary wound retractors only (*A*) are used. The remaining "mechanical hands" (*B*) are applied at the most convenient part of the frame. The illustration (Figure VII) shows the excellent exposure which can be secured with this type of retraction. The three wound retractors are applied as it

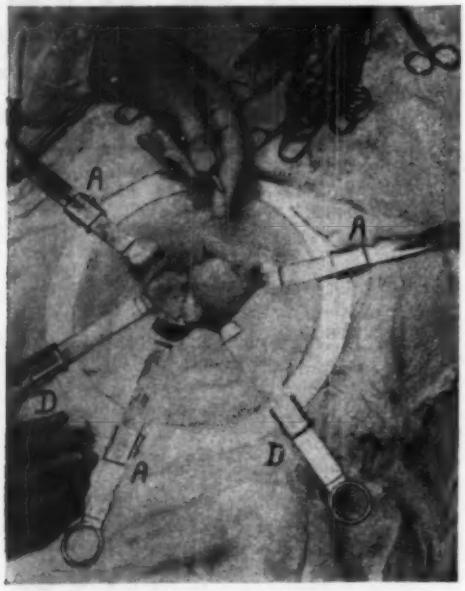

FIGURE VII.

A suprapubic wound, showing "triangular" retraction with three primary wound retractors (*A*, *A*, *A*) and two "mechanical hands" (*D*, *D*). The uterus and a tubo-ovarian abscess are seen.

were radiating from the centre, giving a triangular area of exposure, with the base of the triangle, or longest side, towards the part which is to be operated on. Figure VII illustrates clearly that the major portion of the edge of the wound is not covered by a primary wound retractor, and that the "mechanical hand" can be applied in almost any part of the wound without being interfered with by the primary wound retractors.

In suprapubic wounds (and in fact almost all other abdominal wounds), yet another type of retraction can be used, as illustrated in Figure VIII. Here, one large wound retractor (*B*) is used on one portion of the wound; two small wound retractors are applied at equidistant points around the operating frame (*A*), the rest of the frame being left available for attachment of "mechanical hands". Figure VIII is a photograph of a pelvic section, in which the large wound retractor is applied to the pubic end of the wound, and the two small ones are applied to the umbilical end. One "mechanical hand" only is applied (*D*) and gives full exposure of the pouch of Douglas, while affording free access to the paracolic gutter on the right and the sigmoid on the left.

Another illustration of the "triangular" type of retraction is given in Figure IX, which is a right paramedian incision to expose the gall-bladder. Here three small primary wound retractors are used (*A*, *A*, *A*). Two "mechanical hands" have been applied; one (*D*) has drawn the stomach and duodenum over to the left; the other (*E*) is a long one especially made for retracting the bowel in the paracolic gutter or for deep retraction anywhere. The liver, which has prolapsed over the gall-bladder and in this small incision almost completely obscures it, is retracted by the liver retractor (*F*). It is

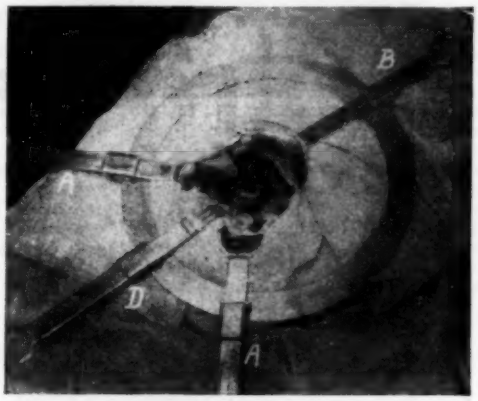

FIGURE VIII.

Suprapubic wound, showing retractors with one large wound retractor (*B*) on the symphysis, two small ones (*A*, *A*) laterally, and one "mechanical hand" (*D*) in the mid-line. The pouch of Douglas and the rectum are fully exposed.

to be noted that the whole of the space between the upper two wound retractors is available for this "mechanical hand"; this comprises one-third of the circle, and the "mechanical hand" can be placed in any part of this area, so as to secure the most favourable retraction of the liver. As the notches in the arm of the "mechanical hand" are spaced only one-sixteenth of an inch apart, the "mechanical hand" retracting the liver can be withdrawn to exactly the right amount, so that the liver is drawn aside to the

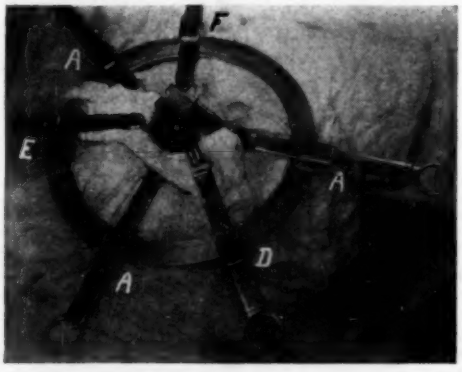

FIGURE IX.

Right paramedian incision for exposure of the gall-bladder and bile ducts. "Triangular" retraction is achieved with three small primary wound retractors (*A*, *A*, *A*). A "mechanical hand" (*D*) draws the stomach and duodenum to the left, another (*E*) retracts the hepatic flexure to the right. The liver is held out of the way and partially rotated by the "mechanical hand" (*F*).

fullest extent available, but without being crushed or bruised by pressure between a "mechanical hand" and a primary wound retractor.

Occasionally the cystic duct is obscured by omentum which prolapses from the right side. This can be held aside gently, and to exactly the right distance and with

exactly the right tension, by the "mechanical hand" placed as shown in Figure X (*F*). A retractor can also be used in this position if it is desired to retract the left lobe of the liver.

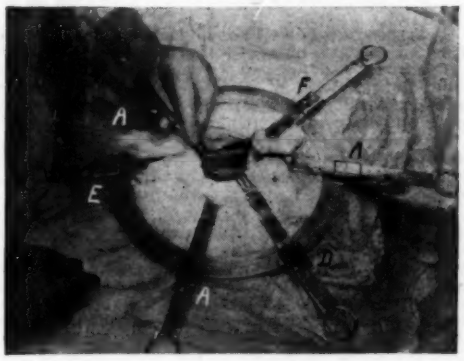

FIGURE X.

Right paramedian incision for exposure of the bile ducts. The set-up is the same as in Figure IX, except that the "mechanical hand" (*F*) is applied from the left, to retract prolapsing fat-laden lesser omentum and the left lobe of the liver.

A further example of "triangular" retraction is given in Figure XI, which shows the excellent exposure of the fundus of the stomach that can be obtained. A large wound retractor is used on the right side (*B*). Two small wound retractors are used on the left side, the upper one *A* in the angle between the xiphisternum and the costal cartilage and the lower one *A'* retracting downwards and to the left, the costal margin thus lying between the two

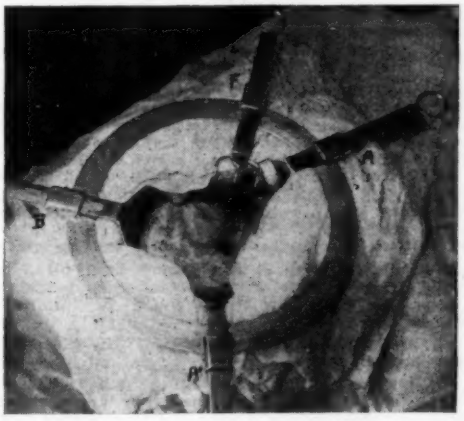

FIGURE XI.

Left paramedian and subcostal incision to expose the fundus of the stomach. One large primary wound retractor is used on the right side. One small primary wound retractor (*A*) is applied between the xiphisternum and the costal cartilages, while another (*A'*) is applied at the costal margin, in the lower end of the wound. A small "mechanical hand" (*F*) is used to retract the left lobe of the liver. (The greater omentum is adherent to an ulcer on the lesser curvature, one inch below the œsophagus.) This set-up is also useful for exposure of the hilum of the spleen.

retractors (*A* and *A'*). The left lobe of the liver is retracted by the "mechanical hand" (*F*), an excellent exposure of the fundus of the stomach thus being given. (In the case in which this photograph was taken the omentum was adherent to an ulcer on the lesser curvature just below the œsophagus.) It will be seen from Figure XI how little space the retractors occupy, both in the wound and on the frame, and how it is possible to attach the "mechanical hands" to any part of the circumference of the circle so as to retract the liver or the bowel to the maximum advantage. In this case exposure of the fundus was aimed at, and the incision used was a combined left paramedian and left subcostal as described by Usadel.[2]

If it is desired to expose the pylorus and duodenum, a left paramedian incision only is used, with or without a prolongation between the xiphisternum and the costal cartilage.[3] The large wound retractor is applied to the umbilical end of the wound, a little to the right; two small wound retractors are used, one acting upwards to the right, the other upwards and to the left. If the usual method of employing one large retractor and three small wound retractors is adopted, with the large retractor in the upper end of the wound,[4] the advantage gained by carrying the incision between the ensiform cartilage and the costal cartilage is partly lost.

By the use of the arrangement of retractors just described, there is room to apply "mechanical hands" to any part of the circular frame; usually one only is required, in the upper portion of the circle, to draw the left lobe of the liver upwards and to the left. Sometimes another small one is of assistance to draw the *ligamentum teres* and bowel to the right. The circular frame and the small number of wound retractors enable these to be placed exactly where they are wanted and their position to be altered if desired during the operation, without disturbing the rest of the frame.

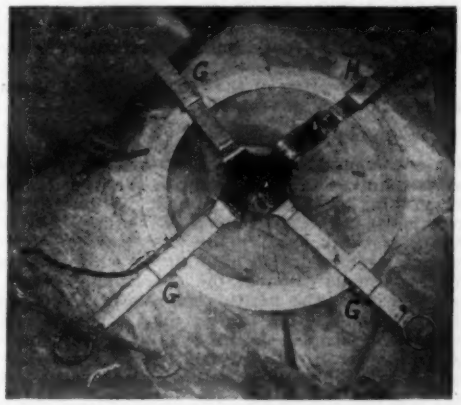

FIGURE XII.

The frame used in the urinary bladder for prostatectomy. Three bladder retractors (*G*) hold the sides and the fundus of the bladder, while a malleable copper one (*H*) retracts the anterior bladder wall. Full exposure of the prostate or prostatic bed is obtained.

The use of the retractor in operations on the urinary bladder is illustrated in Figure XII, which shows the three bladder retractors (*G*, *G*, *G*) applied on the sides and upper end of the wound, with the malleable copper retractor (*H*) retracting the anterior surface of the bladder. A small lamp can be attached to any one of these retractors to illuminate the interior of the bladder. The exposure of the bladder given by this instrument is equal to that obtained with the Thompson-Walker or other bladder retractor.

It may at first sight be thought difficult to retract a wound which runs in one line, so as to convert it into a triangle. This difficulty is entirely theoretical. It is no more difficult to use three retractors to convert the wound into a truncated triangle, than it is to use four retractors to convert it into a truncated sector, as is done with the conventional type of retractor. In actual fact, there is very little real difference in the shape assumed by the tissues of the abdominal wall in the two cases. Experience has shown that wounds in any part of the abdomen can be so retracted without any difficulty and without ill effects on the wall of the abdomen or any organ.

Another advantage of the "triangular" retraction with three small wound retractors is that it permits most pelvic operations to be performed through Pfannenstiel's transverse suprapubic incision; the patient thus has the benefit of a small and inconspicuous scar hidden by the pubic hair, as well as diminished liability to post-operative incisional hernia.

Space does not permit of further illustrations of the use of this instrument. It has been found invaluable in operations involving long and tedious dissections in the abdominal cavity. For example, a mass in the right iliac fossa, involving the caecum and the terminal portion of the ileum, can be satisfactorily exposed if three primary wound retractors and four or five "mechanical hands" are used to retract bowel in three directions from the paracolic gutter, from between the caecum and the terminal portion of the ileum, and from between the ileum and the wall of the pelvis. For wounds requiring exposure under the costal cartilages, two small primary wound retractors can be used on the costal margin and the large primary wound retractor opposite to them, as illustrated in Figure XI. This manœuvre gives excellent access to the space beneath the costal margin. This also applies to operations on the kidney by the lumbar route, in which the frame makes exposure of the upper pole of the kidney easier; the large wound retractor is applied to the crest of the ilium and two small retractors, three inches apart and almost parallel, are applied to the eleventh and twelfth ribs. With moderate retraction the costal margin is lifted well away. If moderate force is used, the eleventh and twelfth ribs can be dislocated and drawn widely apart in the same way as is done by the special retractors made for thoracotomy for the operation of pulmonary lobectomy. The wide exposure thus obtained is equal to that secured by division or resection of the twelfth rib and there is no danger of wounding the pleura.

Conclusion.

When one is familiar with the use of this instrument, it takes less than two minutes to apply. There is no "fussing about", nothing to slip or get caught. Provided that firm pressure between the fingers and the thumbs is used when the wedge is being fixed to the frame, every part of the instrument remains in the position in which it has been applied for the duration of the operation. Should it be desired to change the position of any part—retractor or "mechanical hand"—this can be done easily and quickly and without disturbing the rest of the instrument. There is nothing to get in the surgeon's way, and as all edges are smooth and rounded, there is nothing on which threads or anything else can catch. The instrument when applied is flat and seems to lie almost on a level with the patient's skin. The instrument can be made by a competent mechanic. It uses only ordinary materials, all of which are readily available even at the present time. Its cost approximates to that at which other operating frames are now sold.

Summary.

1. Defects in existing types of operating frames are discussed.

2. General principles are enunciated to which the design of operating frames should conform.

3. An operating frame is described using a new type of attachment by wedge action of retractors to a circular frame, and conforming to these general principles.

4. The use of this frame in abdominal and urological surgery is described and illustrated.

Acknowledgements.

It is desired to acknowledge the invaluable assistance rendered in the design and construction of the frame by Mr. Edgar L. Norris, of Toowoomba.

References.

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(2) W. Usadel: *"Der Rippenrandkulissenschnitt", Der Chirurg*, December 1, 1938, page 825.
(3) H. Devine: "The Surgery of the Alimentary Tract", 1940, page 475.
(4) H. Devine: *Loco citato*, 1940, page 434.

Reviews.

MEDICAL PSYCHOLOGY ON SPECIAL OCCASIONS.

DR. H. YELLOWLEES is well known as a psychiatrist. He has added to an already high reputation by the publication of sundry lectures and addresses under the heading "Out of Working Hours" with a subtitle "Medical Psychology on Special Occasions".[1] The fare is varied, the literary style is simple and interesting. This is a book which should be read by every medical practitioner and then sent on a pilgrimage into the hands of their families and to those selected patients who have the intelligence to learn from the printed page.

The first chapters are a reprint of the author's Morison Lectures on "The Problem of Adolescence". He pleads for a better understanding of the child mind. As he writes: "Their troubles range in an infinite series, from trivial psychological growing-pains to profound bodily, nervous and mental disturbances." "Amazing results can be and are achieved by a man whose knowledge of technical psychology may be limited, but who does realise that the best medicine does not come out of bottles." The great need is for us to know how to turn the child's attention to the pathways of safety and happy living. We must satisfy its desire for knowledge, its questioning of authority and its realization of sex. The need for understanding is shown in the following anecdote:

> "Oh yes", said a patient's father to me recently, in the presence of the patient—a frightened lad of fourteen or fifteen—"George is very truthful. He knows he'd get a damned good hiding if he wasn't." He then added, in his pleasantly robust fashion: "And I've had no trouble about this sex business. I just told him to leave himself alone or he would end up in a lunatic asylum, and there's not been a sign of it."

The author points out in his conclusion that an enormous amount of nervous and mental invalidity has its root in unhappy family life. It is our duty to be able to cope with it, a task which requires a psychological outlook of that practical type so vividly portrayed in these pages.

The subsequent essays are shorter. One, "A Little Brief Authority", concerns the education of nurses and will be read with interest by teaching sisters.

"Mental Hygiene in Modern Life" is a plea for straight thinking in a maze of pseudo-scientific absurdities. We need a remedy for the magic mongers who bewilder us with their advice, such as "Drink no water: drink cold water: drink hot water: drink sea water: drink barley water: drink more beer: drink less beer: drink fresh milk: drink sour milk: don't drink any milk. Eat more fruit: eat more bread: eat raw meat: eat brown bread: eat only vegetables: eat rye bread: eat only oranges: eat unfired food" *et cetera*. As Dr. Yellowlees remarks: "What fools we mortals be!"

In "Voluntary Social Service" there is a plea for the retention of some voluntary effort in order to retain the true spirit of charity without which it "profiteth me nothing".

"Word and Action" reminds us of the necessity for guarding both in our interviews with patients.

In the chapter on "Anxiety States" the author, after drawing attention to the fact that they are becoming as notorious as "shell shocks" in the last war, shows that they must be approached from the psychiatric viewpoint of treatment. Today all too freely "the Hysterical Paralysis goes to the orthopædic surgeon and functional aphonias to the throat specialist".

The book ends with an essay on "Harvey and the Human Heart". It points out that his fame depends not merely on his scientific achievements, but also on those human virtues which inspired respect and affection in his contemporaries.

Although "Out of Working Hours" is a small book, we are faced with an annoying difficulty. Almost every page contains thoughts of humour, tragedy and fact worthy of comment. Thus limitation of space may be an advantage, and the reader must buy the work for his own shelves. He will have no regrets if he does.

[1] "Out of Working Hours: Medical Psychology on Special Occasions", by Henry Yellowlees, O.B.E., M.D., F.R.F.P.S. (Glasgow), F.R.C.P. (Edinburgh), F.R.C.P. (London), D.P.M.; 1943. London: J. and A. Churchill, Limited. 7¼" × 4¾", pp. 160. Price: 8s. 6d.

The Medical Journal of Australia

SATURDAY, AUGUST 28, 1943.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

THE NATIONAL HEALTH AND MEDICAL RESEARCH COUNCIL.

THE National Health and Medical Research Council held its fifteenth session at Canberra on May 27 and 28, 1943, and a report of the proceedings has been published. Owing in all probability to the urgent need to conserve paper the document is rather a sketchy affair. This makes it a little difficult to prepare an account that will satisfy readers of this journal who have latterly acquired a new interest in the doings of this council. The report contains little more than the formal opening remarks of the Honourable E. J. Holloway, Minister for Health, some introductory remarks by the chairman, Dr. J. H. L. Cumpston, a list of the applications for research grants that were approved, a short statement of the matters considered, and the resolutions that were adopted. There is also an appendix in which are reviewed shortly the public health developments during the year 1942 in the international, Commonwealth and State spheres.

The list of applications for grants in aid of research approved by the Council during the year 1943 seems small, but these are additional to those listed in the report of the fourteenth session held last November. The latter list included grants for research to be carried out during 1943 and was quite a long list. It is a pity, however, that neither in the report of the fourteenth session nor in the present document is any reference made to the total amount voted by the Council for research in any one year. This amount should be made known; its publication would be appreciated, particularly by those who recognize that important work is made possible by grants-in-aid from the Council. Among the grants approved at the recent meeting were four in the field of biological chemistry, the subjects concerned being chemical problems associated with the war, problems connected with diphtheria antitoxin, certain metabolism studies and spectrophotometric studies of blood, and photoelectric fluorimetry. Grants were also made (in each case additional expenditure) to the Armoured Fighting Vehicle Committee and to the Flying Personnel Research Committee.

On the public health side of the Council's activities some interesting facts may be noted. The first heading in this category is "Salaried Medical Service" and the last is "Post-War Planning". The sketchiness of the report does not allow the reader to judge what the Council thinks of the relative importance of these two subjects. A discussion took place as to the health matters which should receive special attention in the post-war stages of national life and those deemed by the Council as being worthy of special attention are set out in a resolution. In the last sentence of the resolution it is stated that Sir Raphael Cilento and Dr. E. Sydney Morris will collaborate upon the preparation for the next meeting of the Council of a memorandum on the importance of proper housing in relation to health. The subjects enumerated in the resolution cover a fairly wide field; the several clauses are as follows.

1. The housing of the people, including such essentials as: type of house; size of room; width of street; area of land; piped water supply; water-carried disposal of sewage; the provision of electric services, including refrigerators and washing machines. The Council draws attention to the desirability of continuous revision of building regulations with the object of securing better houses at lower cost.
2. The establishment of a water-carried system of disposal of sewage in every centre of population and, as far as possible, to every home in the rural areas.
3. More definitely local application of public health measures, and increased efficiency in this field, in the rural areas, and for this purpose every medical man should have more specialized training in this aspect of medicine than at present.
4. Provision of better medical services in rural areas.
5. Wider and better correlated hospitalization provision for maternity cases. More trained doctors and nurses in ante-natal and post-natal work.
6. Immunization on a national basis against diphtheria.
7. Pasteurization of milk supplies.
8. Medical services for children of pre-school and school ages should be increased to provide a more efficient service.
9. School dental services should be instituted where non-existent and extended where already instituted.
10. There should be an insistence that proprietary medicines supply the service which they claim to provide.
11. General hospital accommodation should be extended and improved.
12. Mass radiography for tuberculosis within reasonable limits and places of accommodation for the interim treatment of suspected cases are essential parts of the campaign against tuberculosis.

While we forbear to criticize the clauses of this resolution or to suggest additions to it, we would make two submissions. The first is that the Council should try to obtain the same publicity for its "post-war planning" as it achieved for its salaried service scheme of 1941. This might not be easy because the proposals have not such a popular appeal as those offering a free medical service to the public. At the same time the seven departmental heads who are members of the Council at least have the ear of the politicians and should be able to exercise some influence in spreading their own doctrines. This is in fact our second submission—that as heads of departments they have more opportunity than anyone else of preventing their resolutions from remaining as nothing but pious hopes. Perhaps the report of the next meeting of the Council will include the memorandum by Sir Raphael Cilento and Dr. Morris. The Council will then be able to show in their true perspective general measures of post-war planning and proposals for the future of medical practice.

Venereal diseases were among the other matters discussed. A long resolution in regard to the subject was carried, but discussion on its clauses must be reserved for a future occasion. The Council recommends the Commonwealth Government to take steps to secure the

establishment in at least one Australian university of a degree course in home science. The University of Sydney had a school of domestic science and a degree of Bachelor of Science was awarded to two students who took the course. For the time being the school has been suspended and we understand that new proposals regarding it are being considered. A subcommittee of the Nutrition Committee will also prepare a report for transmission to the Government to meet the anticipated shortage in certain protective foods. This is a most commendable step and it is to be hoped that the report will be published. The chairman reported that the National Fitness Campaign was on a stable basis and was growing steadily. An additional sum of £50,000 has been made available in this financial year in connexion with this campaign.

In conclusion, reference must be made to two personal resolutions. The Council put on record its appreciation of the "valuable and devoted service" that Dr. J. Newman Morris had rendered to the nation during his six-year period of membership. Reference was also made to the death of Miss Dora Lush, whose work on virus disease at the Walter and Eliza Hall Institute was so widely known.

Current Comment.

ANOXIA IN HIGH ALTITUDE FLYING.

THE whole issue of *Beiträge zur pathologischen Anatomie* of September 16, 1942, is devoted to papers by the staff of the pathological section, Department of Aviation Medicine of the University of Freiburg i.B. In four interrelated papers an attempt is made to evaluate the lesions produced by oxygen deprivation of blood and tissues as it occurs in high altitude flying. The first paper records the physiological changes and histological lesions produced by exposing animals to critical altitudes repeatedly for various lengths of time. The second paper reports on lesions in organs other than the central nervous system which were found in animals suffering sudden death by rapid exposure to extreme low pressure. The third paper records observations at the autopsies of members of air crews who died in similar circumstances. The fourth paper attempts to correlate these findings with observations on routine post-mortem material.

H. W. Altmann and H. Schubothe, the authors of the first paper, chose cats for the experiments. Five groups were used. In Group A the animals were exposed on six to twelve subsequent days once or twice daily for two hours to altitudes still compatible with life, the critical threshold being touched only on occasions. In Group B the cats were held for one to eight hours at critical altitudes, the tolerance threshold being overstepped on several occasions, and the cats were killed after this single exposure. As this type of experiment did not prove quite satisfactory, an attempt was made in the next series of experiments to keep each individual cat as long and as often as possible at its tolerance threshold. When breathing ceased, the animals were immediately brought back to ground level and artificial respiration was instituted. Most cats recovered rapidly and a new ascent was begun as soon as possible. The cats that did not recover form Group C. In it, exposure of this type for seven to eight hours was repeated on only one or two days for the reason just stated; in Group D (comprising the majority) it was repeated on five to seventeen days. Cessation of breathing occurred usually twice during each such exposure. In Group E this was prevented by temporarily lowering the altitude as soon as cessation of breathing became imminent; the time of the individual exposure, however, was increased on several occasions up to twenty hours.

The results of these experiments can be considered under two headings: the physiological observations and the histological lesions. The first group of observations comprises those during the time in the decompression chamber. With regard to the altitude cats can tolerate, the following statements are made. The tolerance is not constant; it increases somewhat during the first three or four hours of an experiment, but decreases again after about twelve hours. During the first three days of an experimental series, a certain degree of acclimatization takes place. With considerable individual variations the average threshold lies around 34,000 feet. The highest altitude tolerated for some short time was close on 45,000 feet.

The disturbances observed in the decompression chamber can be divided into two groups, those of the higher and those of the lower cerebral functions. Within the first group three syndromes can be observed when decompression is carried near to the critical threshold: first, general motor restlessness often culminating in "motion storms", secondly, localized motor disturbances occurring as tics in the area of the facial nerve or in the extremities, and thirdly, fits. They may be clonic in type, but more common are tonic contractions of all the extensor muscles, sometimes resulting in opisthotonus of the severest degree. Such states are usually followed in a very short time by cessation of respiration and death, if recompression and artificial respiration are not carried out immediately. In intervals between fits an extraordinary hypotonia of the whole musculature is noticeable.

Of the lower cerebral functions, respiration holds the greatest interest. During "ascent" there is the well-known rise of the rate of respiration, in the cats from about 30 per minute to 140 to 200 per minute. The frequency soon becomes lower again, the previously very shallow breathing deeper, and after about one to two hours an equilibrium is found at a rate of about 60 per minute. When the critical threshold is reached, serious disturbances of the rhythm and type of respiration occur, but a true Cheyne-Stokes type has been observed only on a few occasions. Shortly before respiration ceases the rate drops to about 12 per minute. A few snapping breaths occur, often accompanied by extreme tonic contraction of the extensor muscles; after one to two minutes, breathing stops finally and the musculature becomes completely atonic. The picture is not the same in all cases; sometimes stoppage of respiration occurred without any prodromal symptoms. Other symptoms observed include hypersalivation, involuntary defæcation and urination, and a lowering of the body temperature from 39° C. to about 30° C. after several hours.

The next group of observations comprises those made in the thirty minutes immediately after termination of an experiment. The general hypotonia is replaced within a few minutes by a hypertonia, and this is in another few minutes followed by a state of general hyperkinesis, with which disturbances of the equilibrium, ataxias and parapareses are associated. Usually in about ten to fifteen minutes, these symptoms disappear more or less completely. In a number of cases this state is much more severe, but even this subsides after a while. In a few cases severe "recompression fits" of a tonic-clonic nature occur. There are great individual variations in the degree and the duration of these disturbances. In some cats two other symptoms were more conspicuous than those just described, a coarse tremor or an intensive shivering. It is of interest that these two symptoms may be observed during "ascent". They then usually commence at an altitude of about 13,000 to 18,000 feet, but disappear completely at 26,000 feet.

During the interval between the individual experiments, which lasted on the average for sixteen hours, the characteristic features were an abnormal lassitude and a disturbance of locomotion due to a spastic paresis of the posterior extremities. During the first intervals in an experimental series, these disturbances disappear in four to six hours; after three to five experiments, however, they no longer disappear, but acquire a chronic character.

In the following chapter it is shown by a review of published reports that similar conditions can be caused by anoxia of other origin. Breathing of gas mixtures of

low or negligible oxygen content under ordinary pressure, obstruction of the respiratory passages, the action of certain narcotics, carbon monoxide poisoning, ligation of carotid and vertebral arteries, hanging—all these various agents have been described as causing quite similar syndromes. Even cyanide poisoning causes the anoxia symptoms by preventing "internal" respiration. How far in experiments of long duration the deprivation of the central nervous system of glycogen might be a contributory factor is also discussed.

The next pages deal then with the probable type of reactions set up in the central nervous system by the anoxia on the one hand and the restoration of the oxygen supply on the other hand, and as a summary of this chapter the clinical picture of asphyxia of the central nervous system is arranged in four stages: (i) pre-asphyctic irritation, (ii) pre-asphyctic paralysis, (iii) post-asphyctic irritation and (iv) post-asphyctic paresis.

The next seventy pages of the paper give a very detailed account of the results of the microscopic examination of the central nervous system of each cat and their possible interpretation. This section is illustrated by forty photomicrographs and six tables showing the localization of the lesions. Space does not allow more than a very short summary of these often highly technical findings. All types of nerve cell degeneration as described by Nissl were seen, with and without accompanying lesions of the elements of the glia. It has been possible to correlate the types of degeneration observed with the rate at which the lesions were apparently produced. With regard to the localization the elective sites are (in order of decreasing intensity): cerebellum, cerebral cortex, *nucleus caudatus* (not *pallidum*), *corpus geniculatum laterale*, nuclei of the sensory cerebral nerves, posterior columns of the spinal cord. The white matter was practically never affected. In all these regions only certain types of cells and these only in certain layers show the most marked damage. The authors come to the conclusion that, responsible for the irregular distribution of the lesions, is a special sensitivity against anoxia which may be locally intensified by vascular disturbances. A list of 115 references is appended.

In the second paper, J. Pichotka reports on experiments on guinea-pigs. In a first series the animals were brought in thirty to fifty minutes to an altitude of 43,000 feet, where they remained for periods from 6 to 100 minutes. In a second series they were kept at altitudes between 30,000 and 36,000 feet with survival periods of 4 to 244 minutes. In the next series the animals were brought to about 40,000 feet under oxygen and this then suddenly replaced by air. (Imitation of oxygen mask accidents during high altitude flying.) In further experiments guinea-pigs were killed by breathing gas mixture of low oxygen content at atmospheric pressure, by suffocation or carbon monoxide poisoning. Rabbits were left to die from being kept in a vertical position. Finally guinea-pigs were exposed to non-fatal altitude sickness, and killed shortly afterwards. Under all these conditions, which have as common denominator the development of anoxia, changes were found in liver, kidney and heart muscle, that were identical in nature, though different in severity. The characteristic lesion is the formation of intracellular vacuoles. These do not contain fat; they are not artefacts. As far as one can conclude from their behaviour against a large variety of fixatives and stains they contain a fluid or hyaline material of protein nature. In the liver, they are, in animals which survive for a very short time, seen only in the central portion of the lobulus, but extend throughout the whole lobulus when survival is longer. In the heart muscle the earliest lesions are found in the perinuclear areas; in more severe forms the whole fibres are affected. In the kidneys, the lesions are usually inconspicuous, but may be observed in the cells of the proximal convoluted tubules. The lesions were even found when animals tolerated anoxia for only ten minutes. On the other hand, they seem to be reversible when death does not occur during the experiment. The mechanism of the formation of the vacuoles is a matter for speculation, and the authors give a full account of the processes which may be involved.

The importance of these investigations lies in the fact that, if men reacted in the same way as laboratory animals, a decisive diagnostic criterion of death from anoxia would be at our disposal. This question is taken up in the third paper by E. Müller and W. Rotter. They report on the post-mortem examinations of four members of air crews who died from accidents during high altitude flying. The first case was that of a flight engineer who changed at an altitude of about 25,000 feet from the usual oxygen supply to a "walk about bottle" in order to test one of the engines. Ten minutes after having done this, he was seen sitting on some part of the fuselage. Five minutes later, during which he was not particularly noticed by the other members of the crew, he was found dead at the bottom of the plane. No gross defect of the oxygen apparatus could be found. In the second case, a photographer developed altitude sickness at a height of about 16,500 feet through faulty manipulation of the oxygen supply. After five minutes the pilot went into a dive and advised the man to remove his mask. The latter was, however, not able to do so, and although artificial respiration was commenced ten minutes after the onset of the symptoms, it was of no avail. The third case was that of a reporter who had already had an attack of high altitude sickness during a previous flight. While at an altitude of about 23,000 feet the observer noticed that he was sitting unconscious in his seat. The quick release fitting of his mask was found to be separated. Although the plane returned to low altitude and artificial respiration with oxygen was applied immediately, consciousness did not return. In the fourth case a member of the crew was seen by his mates lying face-down at the bottom of the fuselage. They thought that he wanted to observe the results of bombing and did not take any further notice. Only after landing about one hour later they found him to be dead. A definite defect in his oxygen supply line was discovered. Highest altitude reached during the flight was 23,000 feet. The post-mortem examination in all four cases revealed the same vacuolization of liver, kidney and heart muscle cells as described in the preceding paper. A number of other interesting but not so significant observations were made which space does not allow us to record. It is of importance again, as in the animal experiments, that the characteristic lesions were present after only five to ten minutes of anoxia.

In the final paper W. Hesse tries to answer the question, whether anoxia is the only cause for these vacuolizations, or whether other conditions may also produce them. For this purpose two series of investigations were undertaken. Firstly, the livers of forty men who had died in fatal air crashes were examined. In none of them were the vacuoles found. Secondly, the livers obtained at 100 routine post-mortem examinations were specially studied. The first eighty were chosen at random, the last twenty from a group of diseases that seemed, as shown by the examination of the first eighty, to lead to such vacuolization. In all, in 16 out of the 100 cases the liver cells contained the typical vacuoles. Although these 16 cases represented 14 different conditions, it was quite evident that in all of them anoxia was the last cause of death. The chain of arguments seems thereby closed: fatal anoxia, even of a very short duration, will leave characteristic traces in liver, heart and kidney.

The results of these investigations seem to be valuable in a number of directions. In the first paper the detailed account of clinical observations and histological findings, the correlation of one with the other and with related conditions, will prove of interest to any worker in this field. Two points emerging amongst many others from the three following papers may be mentioned. First, it will be possible to distinguish, for example, whether an air crash has been caused by anoxia of the pilot or whether other causes have to be looked for. Secondly, pathologists in general will welcome the fact that it is at last possible to find at autopsy microscopic evidence of at least a group of conditions which, although fatal, affected the cells of the body only for a very short time before death. The inability to do so has been very distressing on numerous occasions.

Abstracts from Medical Literature.

THERAPEUTICS.

Treatment of Angina Pectoris with Testosterone Propionate.

MAURICA A. LESSER (*The New England Journal of Medicine*, February 11, 1943) gives his results of the use of testosterone propionate in the treatment of a further 22 patients, including one female suffering from *angina pectoris*. All patients were subjected to a standard exercise tolerance test—walking up and down steps at a constant rate, two hours after meals and at a room temperature about 72° F. The number of trips needed to produce an attack were noted, as also was the duration of the attack. A dose of 25 milligrammes is given at each injection, the number of treatments required depending on the result as checked above. In some cases it is found that response is satisfactory after the second or third injection, but in other instances improvement is not seen until fifteen to twenty-five doses have been administered. A period of freedom from attacks is then induced and its duration varies from two months to eighteen months. In all cases the attacks are less severe after treatment, and among subjects who returned for a further course, it was observed that fewer injections were required to produce satisfactory results. It is emphasized that nitro-glycerine may still be required for treatment of the attack as testosterone is essentially a prophylactic therapy.

Thyreotoxicosis.

W. R. CAMPBELL (*The Canadian Medical Association Journal*, February, 1943) discusses the symptoms and treatment of thyreotoxicosis. He states that he has not seen dramatic results from X-ray treatment, and that the results of less intensive radiation treatment are almost negligible. The thyreoid gland collects iodine, manufactures and stores thyroxin and regulates the body thyroxin. In Ontario an iodine-poor soil leads to much colloid or simple goitre, and toxic goitre is prevalent. In view of the possible occurrence of cretinism the author advises the supply of iodine to the public. Iodine lack gives rise to simple goitre, and plays an important part in toxic goitre. It leads to hyperplasia of the cells with excess of thyroxin production. This stimulates the activity of all cells, increases heat production and raises the total body metabolism to 4,000 to 6,000 Calories per day. Three thousand cubic centimetres of fluid daily are necessary in toxic goitre, and extra salt intake to give the normal balance. Large amounts of solid and liquid carbohydrates and moderate amounts of proteins and fats are indicated in the diet. Adequate vitamin *B*, particularly thiamin, are necessary to maintain appetite. Bed rest, limitation of visitors and quiet surroundings are needed. "Nembutal" should be taken at night, and two small divided doses of "Luminal" by day. Iodine causes a diminution of the circulation through the gland, and the thyroxin is not put into circulation so quickly; meanwhile thyroxin in circulation is destroyed at the rate of 10% per day, and as it is unreplaced, metabolism falls. Continued administration of iodine leads to diminished absorption by the gland and recurrence of turgidity, hardening of the gland and increased output of thyroxin again. The hard gland is a warning that too much iodine is being given. Ten minims of iodine daily prepare a patient for operation in seven to ten days. More than 15 minims may produce over-iodization. Thyreoid crises result from dehydration, infection and operative trauma. Liberal supplies of fluid must be given before and after operation, with adequate sedation, intravenous injections of glucose in saline and distilled water (10%). An ice bag is applied to the gland. Intravenous injections of 10% sodium iodide solution in doses of two to six cubic centimetres every three or four hours are given until the temperature falls; 15 to 20 grains of aspirin given by mouth, or one-quarter grain of pilocarpine given with atropine may induce sweating, with immediate improvement. The atropine should prevent undue bronchial secretion due to pilocarpine. For cardiac failure or fibrillation one-quarter to one-third of a milligramme of "Digoxin" given intravenously may be of value, and may be used in the crisis.

A Healing Ointment.

M. MONNEROT-DUMAINE (*Revue de la Science médicale française du Moyen-Orient*, November, 1942) calls further attention to an ointment which he evolved in 1941. The ointment, which is used with success in the treatment of atonic wounds and delayed healing, has the following composition: equal parts of horse serum, cod liver oil and lanolin, with the optional addition of 2% of "Gomenol". The author states that the ointment is simple to prepare, and even when made without any particular precautions remains sterile. The ingredients are easily procurable. The serum used may be one of the various types of therapeutic serum, too old to be used for its original purpose, or else hæmopoietic serum of young horses. The lanolin is an excellent excipient. "Gomenol" is used chiefly as a deodorant; but it is also a non-irritant, antiseptic healer which has an anæsthetic action and relieves congestion. The ointment prevents the adherence of dressings and can be used to make *tulle gras*. The horse serum provides hormones *et cetera*. Cod liver oil is valuable, not only for the vitamin *A* and vitamin *D* that it contains, but also for its fatty acids, which exert a controlling influence on cellular mitosis.

Persistent Hiccup.

UNCONTROLLABLE HICCUP is a symptom of great importance and the management of a case is generally recognized as one of outstanding difficulty. Hamilton Bailey (*The Practitioner*, March, 1943), impressed by the ineffectiveness of the usual therapeutic procedures, "specific" drugs (dilute hydrocyanic acid, tincture of iodine, oil of cajuput, amyl nitrite, "Benzedrine"), carminatives and sedatives, has suggested a therapeutic programme which has proved its worth in hiccup. Firstly, pass a gastric aspiration tube to eliminate acute dilatation of the stomach; secondly, ascertain the urinary output and, if possible, the level of the blood urea; thirdly, examine the thorax with special reference to pleurisy. Having carried out these preliminaries, inaugurate carbon dioxide therapy by mask to ensure a 5% concentration (catheter and funnel method is quite useless). It must be given to the point of discomfort and be resumed at each recurrence of hiccup. A chart must be kept noting the time and duration of administration and the freedom from the symptom. In 50% to 60% of cases the condition is brought under control, if not cured, in forty-eight hours. Unless the chart records a substantial improvement in twenty-four or at the most thirty-six hours, it is considered inadvisable to postpone the next procedure, namely, injection of the phrenic nerve. This may seem a drastic step to take, but exposure of the nerve under local anæsthesia and injection with "Novocain" has been effective within forty-eight hours in every case in which this treatment was used. The left side has always been treated, for it is assumed that the left side of the diaphragm is the chief offender.

Amphetamine Sulphate in Obesity.

R. H. KUNSTADTER *et alii* (*The American Journal of the Medical Sciences*, June, 1943) have investigated the decrease in appetite and in weight of obese children treated with "Benzedrine". The drug caused increased activity and mental and physical responses. Will power was augmented; diet was easily followed. That these effects were due to the drug and were not of psychic origin was proved by the fact that the children regained appetite and weight when other drugs or *placebos* were administered. Experiments were carried out on dogs and on human subjects. In the dog, psychic secretion was not greatly changed by "Benzedrine" and the effects of the drug on the gastric secretion were inconstant. "Benzedrine" depressed gastric motility in the dog and in man. The authors conclude that the results obtained with "Benzedrine" are due to the psychic effects of the drug and to the depression of gastric hunger motility and of hunger.

NEUROLOGY AND PSYCHIATRY.

The Treatment of Depressive States by Electrically Induced Convulsions.

OTHO W. S. FITZGERALD (*The Journal of Mental Science*, January, 1943) reviews his experience with electrically induced convulsions in the treatment of 92 female and 58 male patients suffering from depression. He discusses the history of this form of treatment and compares it with the use of "Cardiazol". Most patients prefer the electric to the pharmacological shock. Of his patients, 78% were ultimately discharged from hospital as cured, 4% were improved and 10% remained in hospital, while 8% were discharged but had to be returned to hospital. The average number of electric convulsions required for the production of a sustained remission was found to be 17, and this figure was irrespective of the previous duration of the illness. The writer claims that the recoverability of patients does not seem to be affected by the duration of the illness, provided this does not exceed three years. In

this series the patients' post-hospital state was checked by investigation by social workers in the approved manner; and 63 of the 85 patients discharged cured were found to be usefully employed six months after leaving hospital.

Malnutrition in Chronic Schizophrenia.

NUTRITIONAL STUDIES of 374 schizophrenic patients have been made by Crawford N. Baganz and James M. Norris (*The American Journal of Psychiatry*, January, 1943). On admission to hospital schizophrenic patients showed little difference from the general population as regards malnutrition, but after they had been in hospital for eight years there was a significant increase in the extent of their malnutrition. The writers believe that malnutrition in chronic schizophrenics may help to explain the changes in the cardiac shadow noted by X-ray examination and commonly referred to as the "longitudinal heart". They note that as the patients become less active the malnutrition tends to increase and that it is not apparently affected by the type of services offered by the hospital or by the calorific value of the diet that is served to the patients.

Electric Shock Treatment in General Paresis.

GERT HEILBRUNN AND PAUL FELDMAN (*The American Journal of Psychiatry*, March, 1943) report the use of electric shock treatment in five cases of general paresis. Their results were most unpromising; indeed, they found the treatment to be a "perilous procedure" for patients diagnosed as suffering from psychosis with syphilitic meningo-encephalitis. They used a machine giving an alternating current of from 250 to 350 milliampères for three-tenths of a second at a tension of 60 to 70 volts, and they gradually increased this dosage until a major convulsion was produced. Treatment was terminated before any clinical improvement was apparent because of the cardio-vascular and respiratory disturbances which accompanied the convulsive reactions. The pathological effects of electric convulsions upon the brain tissue are discussed with reference to the work of others in this field; and the present writers agree that the severe clinical complications following electro-convulsion therapy in brains infected with syphilis may be due to the heightened vulnerability of their ganglion cells.

Complications during Electrical Convulsion Therapy.

THE question of fracture complicating convulsion therapy has been taken up by Eric Samuel (*The Journal of Mental Science*, January, 1943). In a series of 420 patients treated by electro-convulsion methods 2·8% were found to have sustained fractures. The author considers that his figure may be conservative because routine radiography was not employed. As a radiologist he considers that the demonstration of spinal fractures requires films of high technical detail. The commonest fracture is of the body of one or more of the spinal vertebræ; but he gives examples of other bone fractures. He mentions the use of radiography before the convulsion treatment to estimate the risk of fracture; and reference is made to pre-therapy radiographs of the respiratory and circulatory systems as further safeguards.

Psychiatric Aspects of Obesity in Children.

OVEREATING, inactivity and exaggerated bodily size, the main features of obesity in children, have a definite functional value for these children, according to Hilde Bruch (*The American Journal of Psychiatry*, March, 1943). The writer recognizes the obviously somatic appearance of childish obesity, but states that close personal contact with many obese children and the study of their life histories and family backgrounds has convinced her that their difficulties of psychological adjustments go back to a time long before the children were conscious of their unnatural bulk. She claims that later the fat child's attempt to realize its inmost striving for personal growth and independence becomes bound up with its bodily size and takes on an emotional significance. Its bulk is made to serve as a sense of power and strength. Its feelings of insecurity and insignificance form an inner tension and anxiety which take refuge in over-eating. The over-indulgent and possessive-protective attitude of the mother produces a situation of dependence which is threatened by the growth and maturation of the child. The mother, therefore, in pampering the child often aids the obesity which the child uses to offset through its increasing or abnormal bulk this feeling of independence.

Electroencephalographic Studies in Epilepsy.

KNOX H. FINLEY AND JOHN B. DYNES (*Brain*, Volume LXV, Part 3, 1942) have studied electroencephalographic tracings obtained from 626 unselected epileptic patients. The instrument used was a Grass six-channel electro-encephalographic apparatus. The electrodes were placed over the frontal, precentral and occipital regions of each hemisphere and the indifferent electrode over the mastoid. Of the electro-encephalographic tracings taken, 86% were borderline or abnormal and 14% were normal. The writers stress the variability of the tracings of epileptic patients; and they found that many of the patterns obtained from epileptics were also to be found in other neuro-psychiatric conditions. They believe that the electroencephalographic tracing can continue to be of value to the diagnostician, especially when it is used as an adjunct together with other laboratory data. They recognize that this information may often be non-specific, but claim that it more often gives evidence of cerebral disorder in the epileptic when other methods fail.

Mental Characteristics with Essential Hypertension.

LEONARD GOLD (*The Psychiatric Quarterly*, April, 1943) reports a study of ten patients suffering from essential hypertension and has observed the prevalent mental features. Anxiety as a specific factor was not found; but strong parental attachment with submissiveness to parents or surrogates appeared prominent. These patients showed tendencies to periodic depression and gave evidence of labile emotional reactions. Mental manifestations were often sudden in appearance and characterized by depressive, destructive and paranoidal features. The emotional instability of these patients seemed to indicate that for certain periods they had tried to make satisfactory adjustments, but broke down owing to the lack of adult emotional development. A common feature was an inadequate heterosexual adjustment. Where overt and aggressive impulses were apparent these became inhibited prior to the onset of the psychosis.

Bilateral Prefrontal Lobotomy in Chronic Schizophrenia.

SENSIBLE of the generally unsatisfactory response to shock treatment in cases of chronic schizophrenia, GERT HEILBRUNN AND PAUL HLETKO (*The American Journal of Psychiatry*, January, 1943) subjected ten patients to bilateral prefrontal lobotomy; of these, nine were suffering from chronic schizophrenia and one from mental deficiency with periods of excitement. The operative procedure was that described and followed by Freeman and Watts, the idea being to section the white matter of the frontal lobes as far as safety will permit. Two patients died following the operation. In the nine months following the operation only two of the remaining patients have shown any amelioration of their mental symptoms. One patient has become decidedly worse since the treatment; and the remainder seem unaffected. The authors do not recommend this form of treatment for chronic schizophrenics.

Treatment of Involutional Psychoses with Diethyl Stilbœstrol.

ŒSTROGENIC PREPARATIONS were given for one or two months to a group of patients suffering from involutional psychoses by Eugene Davidoff, E. C. Reifenstein and Gerald L. Goodstone (*The American Journal of Psychiatry*, January, 1943) in an attempt to ascertain the value of hormone treatment. Forty-five women were treated and the results compared with 128 women in the control series. Diethyl stilbœstrol was administered orally in capsules of one milligramme. For the first week the patients received four milligrammes daily; the following week they received three milligrammes daily, and thereafter two milligrammes for the remainder of the treatment. "Progynon-B" in doses of 1·66 milligrammes (100,000 international units) was injected intramuscularly. The first week the patient received 1·66 milligrammes four times, the second week the same dose three times and the third week the same dose twice, and twice weekly thereafter for the remainder of the treatment. Endometrial biopsies were performed at weekly intervals in nine of the cases. It is claimed that 60% of the patients were improved as against only 54% of the untreated control patients. It was found that *dementia præcox*, manic-depressive psychoses and chronic psychoneurotic disorders occurring during the involutionary period were not favourably influenced by this form of treatment. But the authors conclude that the use of diethyl stilbœstrol is of definite value in the treatment of involutional psychoses.

Medical Societies.

MELBOURNE PÆDIATRIC SOCIETY.

A MEETING of the Melbourne Pædiatric Society was held at the Children's Hospital, Carlton, Melbourne, on May 12, 1943, DR. H. D. STEPHENS, the Acting President, in the chair. Part of this report was published in the issue of August 14, 1943.

Neuroblastoma.

DR. BRUCE HALLOWS showed a male child, aged four years and five months. The boy had complained of fleeting joint pains for the preceding twelve months. Eight months earlier both knee joints became hot, swollen and shiny; but this condition had rapidly subsided. Four months prior to the meeting numerous lumps began to appear in his head. On examination, he was seen to be a pale, emaciated child, resenting movement. The cardiac apex was situated in the fifth intercostal space four inches from the mid-sternal line. A soft systolic bruit was audible at the apex. Numerous moist sounds were heard at the bases of both lungs. The abdomen was distended, with prominence in the right and left hypochondria. The liver was palpable three fingers' breadth below the right costal margin. In the left hypochondrium was felt a large, hard tumour with an irregular anterior edge; it did not move with respiration. This mass was continuous with a mass of similar consistency filling the left renal angle. The customary band of resonance anterior to the kidney tumour was absent. No free fluid was detected in the abdomen. Pronounced wasting of the muscles of the extremities had occurred. The range of movement at the joints was good, but the bones were tender. The lymph glands in the axillæ, groins and neck were enlarged. Inspection of the skull revealed numerous bosses of varying size. These were semi-fluctuant and intimately attached to the underlying skull bones. X-ray examination revealed numerous secondary deposits in the skull and in both humeri, radii and ulnæ, femora and tibiæ. Small secondary deposits were also demonstrable in the vertebræ and in the bones of the pelvic girdle. A small calcified area could be seen in the region of the large mass in the left hypochondrium. A small gland had been removed from the region of the angle of the jaw. Sections of this were examined microscopically and presented the appearance of hyperplastic lymphoid tissue. The child had a low-grade fever with rapid cardiac action. The hæmoglobin value was 25%.

DR. KEITH HALLAM commented on the rarity of the tumour and on the many radiological manifestations causing it to simulate many other conditions. He said that radiologically it might resemble syphilitic metaphysitis and tuberculous joint disease, also the various types of sarcoma and some of the coccal infections of bone. The presence of foci elsewhere, however, soon raised the question of secondary malignant disease, and eventually neuroblastoma came up for consideration. In some cases, X-ray examination furnished the first evidence of the disease—for example, the demonstration of an abnormal condition in the ribs in an obscure case of effusion in which aspiration had been performed. Medicine in Australia had acquired fame through distinguished pathologists, notably Webster, King and Willis. The last-mentioned had shown that the so-called Ewing's sarcoma was only a secondary manifestation of a primary neuroblastoma. His work had revealed to radiologists that their assurance in the diagnosis of malignant disease of bone was ill-founded indeed. In reply to questions, Dr. Hallam said that the demonstration of a suprarenal mass by X-ray examination after the injection of air into the abdomen was too dangerous a procedure for routine use. Dr. R. A. Willis had always been able to demonstrate a primary tumour in the suprarenal or other neuroblastic tissue.

DR. LAWRENCE STOKES thought that the case was unusual, in that the suprarenal mass could so easily be palpated.

DR. H. BOYD GRAHAM held that the cause of the palpable mass may well be secondary malignant deposits in adjoining glands rather than the primary tumour itself.

DR. LENA THOMAS recalled a case at the Royal Melbourne Hospital, in which Dr. R. J. Wright-Smith had made a thorough, though unsuccessful, search for a primary tumour arising from neuroblastic tissue, though the bones were riddled with secondary deposits.

DR. J. W. GRIEVE recalled a patient he had shown at a meeting of the society twelve months earlier under the diagnosis of neuroblastoma. The child presented lumps in the head and glandular enlargement. At autopsy, the primary lesion proved to be a sarcoma of the ovary. Dr. Sinn's patient, who was shown at a meeting three months earlier, had a lesion simulating lymphatic leuchæmia and developed bilateral swelling of the salivary and lachrymal glands, or Mikulicz's syndrome. Autopsy verified the diagnosis of neuroblastoma. X-ray examination had revealed bony changes in the femora, probably due to secondary malignant deposits.

DR. H. D. STEPHENS said that he had removed a neuroblastoma from the brachial plexus of an infant about four weeks old. This was intimately connected with the nerve. In dividing the tumour he had severed the nerve; this resulted in biceps and flexion paralysis on the same side. Dr. Stephens had performed the operation two and a half years earlier, and no secondary deposits had developed since. The diagnosis had been substantiated by Dr. Webster's biopsy examination of the tumour.

Dr. Hallows, in reply, said the patient was shown because he presented such a typical example of the condition with all the classical features, especially the large palpable mass in the left hypochondrium, the numerous secondary masses and the enlarged liver. Amongst other things, Dr. Willis had held that the method of spread was by the blood and not by the lymph glands. Dr. Hallows could offer no explanation of the calcification. This would be elucidated in due course at autopsy.

Rheumatoid Arthritis.

DR. J. W. GRIEVE showed a male patient, aged three years and six months, who had suffered from pain and stiffness in the neck ten days before; this was followed by pain in the elbows, wrists and feet. His right knee had been swollen for some days. He had been treated with salicylates without benefit. He was examined on February 10, 1943, and arrangements were made for his admission to hospital. He had periarticular thickening of both elbows with limitation of movement, especially extension. Swelling, limitation of movement and pain on passive movement of the right knee were present. The temperature was elevated. The inguinal glands were enlarged on the right side. After his admission to hospital, his condition remained much the same, and he was febrile. He did not respond to the administration of salicylates or "M & B 125". On March 1, two weeks after his admission to hospital, the left knee became swollen and the temperature increased. One week later he had a sore throat, and there were suspicious signs at the base of the right lung. Scarlet fever was present in the ward, but examination of a throat swab gave negative results. He was treated with "M & B 693". A rash developed next day; this was thought to be due to medication, as it was of a macular type. The rash subsided in twelve days. Dr. Grieve said that since then the child's condition had varied, with periods of improvement followed by exacerbations. For example, on April 1 he had a painful neck. On April 19 his left knee again became swollen and painful and he was pyrexial. On May 3 another attack of pain in the neck occurred. At the time of the meeting he was better and had very little pain. His limbs had wasted considerably above and below the affected joints. Special investigations had been carried out. An X-ray examination of the long bones revealed no abnormality. Attempted blood culture gave negative results. The blood film appeared normal. The leucocytes numbered 9,250 per cubic millimetre, and the result of the differential leucocyte count fell within normal limits. An agglutination test for *Brucella abortus* produced negative results. An X-ray examination of the chest revealed no abnormality, and there was no response to the Mantoux test.

Dr. Grieve said that the boy was shown because he appeared to be suffering from rheumatoid arthritis in childhood—a rare condition. In most cases it occurred in the first few years of life, especially after the first three. The disease had its maximum incidence in the knees. Sometimes only the larger joints were involved, as in the present case. Involvement of the cervical part of the spine usually took place early. The joints were symmetrically affected. Exacerbations were common. Inspection disclosed limitation of movement at joints, pain on passive movement, and muscle wasting above and below. Usually glandular enlargement occurred, and the spleen was not infrequently palpable. The two last-mentioned phenomena were present in that form of the disease to which Still's name had been attached. Generalized wasting and anæmia were nearly always present. Leucocytosis occurred during the febrile exacerbations. The prognosis for children was better than for adults. Some degree of improvement could always be expected. The ultimate prognosis had to be guarded.

General supportive treatment was necessary for the joints. One should aim at preventing deformities. The tonsils were under suspicion in the case under discussion.

DR. ROBERT SOUTHBY referred to the prognosis in such cases. He recalled a well-known case during his period as a resident medical officer at the Children's Hospital. At that time the changes were very pronounced. At the present time, however, that patient could ride a bicycle. Dr. Southby was reminded also of another patient, a girl, with multiple joint involvement, whose X-ray reports suggested ankylosis of both hip joints. He was surprised to see her turn up later at the physiotherapy department with a good deal of movement in both hips.

DR. H. BOYD GRAHAM quoted a patient shown ten or fifteen years earlier, suffering from recurrent rheumatoid arthritis affecting especially the knees. At the age of nineteen years this patient was able to assist the war effort in a munitions factory. Apparently in rheumatoid arthritis there was a reasonable chance of improvement over some years; but one should not be too optimistic. The nomenclature of the subject was rather confusing and might have to be reviewed.

Dr. Grieve, in reply, said that in many cases it was difficult to say whether the lesion was rheumatoid arthritis or not. Also in others it was difficult to be certain that the lesion fitted in the category known as Still's disease. The fusiform swelling of the joints and glandular enlargement were the most important distinguishing features. In 50 cases occurring in children aged under three years, splenic enlargement was present in 32. With regard to prognosis one would expect the outlook to be better, as the changes were periarticular and did not involve bone or cartilage except at the fingers.

Complete Heart Block.

Dr. Grieve's second patient was a female, aged five years and six months. She had been admitted to hospital on February 25, 1943, suffering from acute pyelitis of twelve days' duration. Examination revealed a heart of normal size with a systolic bruit at all areas, maximal at the apex. Her previous history was good, and there was no history of rheumatism. The pyelitis responded to the exhibition of alkalis, and the urine was microscopically clear a week after her admission to hospital. The maximum pulse rate was 96 per minute. On March 7, ten days after her admission to hospital, she developed a sore throat with associated adenitis. As patients suffering from scarlet fever had been in the ward, a swab was taken; no hæmolytic streptococci were found on it. Subsequently no rash appeared. On March 9, during this attack, the child complained of some pain in the wrists and abdomen, for a few hours only. At this time, despite her elevated temperature, the pulse rate was noted to be very slow, 30 to 40 per minute. Heart block was suspected and a tracing was taken; this revealed complete heart block. For the next six weeks the pulse rate averaged 30 to 40 per minute, and repeated tracings on April 15 and 21 still revealed complete block. Her general condition was good, although she complained of slight pains in the knees on April 6. On May 1 she had another attack of sore throat, of mild character. Her pulse rate had been relatively higher in the past two weeks, and there was some irregularity of rate. The apex beat was in the middle line, and the first sound was rather blurred at the apex. A muffled third sound frequently was heard in the cardiac cycle. The child had presented no alarming symptoms.

Dr. Grieve said that the patient was shown because of the rarity of the condition. The ætiology was of interest; it was probably rheumatic. The prognosis with regard to the heart block probably was good. The treatment was prolonged rest in bed to give the myocardium a chance to recover. Further observations were necessary. Dr. Grieve further said that scanty reference had been made to the condition in the literature at his disposal. Mention was made of the condition occurring in the early stages of rheumatic fever. In children, complete heart block was more commonly associated with congenital heart lesions. The usual ventricular rate was 44 per minute, but it might increase to 56 with fever and after strenuous exercise.

DR. LAWRENCE STOKES said that he was in agreement with Dr. Grieve. The ætiology was almost certainly rheumatic; one could disregard the pyelitis. The pyelitis had been followed by joint pains, pyrexia and sore throat. There was scarlet fever in the ward at the time. A history of scarlatina was often found in the case of rheumatic patients. Dr. Scholes had pointed out that some cases of scarlet fever were more likely to be complicated by nephritis and others by rheumatic fever. One was well advised when reading an electrocardiogram to concentrate on Lead II. There was no question that the patient's electrocardiogram showed complete dissociation between auricular and ventricular contractions. But the tracings were by no means typical. The auricular beats were irregular, no doubt owing to sinus arrhythmia; but the interesting and unusual point was that the ventricular beats were also occurring at irregular intervals. This was brought about not infrequently by ventricular extrasystole; but that explanation would not hold in the case under discussion. The deflections were not those of premature beats. Dr. Stokes said that he was at a loss to explain the ventricular arrhythmia. He noticed that the rhythm was now changing to that of incomplete heart block, a condition met with more frequently than complete heart block. Increase in the *PR* interval was common in rheumatic cases. It would be instructive to follow the course of the patient under discussion with electrocardiograms taken at intervals.

DR. W. W. MCLAREN said that in 1941 mention was made in *Archives of Pediatrics* of routine electrocardiographic examination for rheumatic patients. All kinds of heart block were described in acute rheumatism.

DR. ROBERT SOUTHBY asked whether it was the practice to use sulphonamide therapy after the acute illness had subsided, in order to prevent recurrent attacks of rheumatic fever.

Dr. Grieve replied that he had not tried the effect of sulphonamide as a prophylactic. The case was presented to the society because of its rarity.

Atypical Leuchæmia.

DR. A. G. NICHOLSON discussed the case of a boy, aged three years and three months. Three days after a fall out of bed, he became feverish. The next day he complained of pain in the right leg, which appeared to be tender. This pain diminished; but a few days later pain and tenderness appeared in the left leg. By this time increasing pallor was noticed, and night sweats were becoming frequent. On examination, the child was pale and listless; his temperature was 103° F. The right lower limb was flexed at the knee joint, and heat and swelling were present over the lower end of the femur. The ankle jerks could not be elicited, and a possible diagnosis of anterior poliomyelitis was entertained. It was quickly changed to osteomyelitis when localized tenderness was demonstrated over the lower end of the right femur. In view of the low hæmoglobin value of 45%, a blood transfusion was given and the limb was placed in simple extension. The child meanwhile was complaining of pains in the arms as well as in both legs. When generalized glandular enlargement became manifest, a full blood examination was carried out. The hæmoglobin value was 52%. The erythrocytes numbered 2,250,000 per cubic millimetre and the leucocytes 8,200 per cubic millimetre. The differential leucocyte count revealed an undue proportion of lymphocytes (97%); but no primitive cells were seen. Sternal puncture revealed a crowding-out of the marrow with immature cells of the lymphpatic series. The child's condition rapidly deteriorated. He became dyspnœic, and died two and a half months from the onset of the malady. In the later stages of the illness the leucocyte count mounted to 29,000 per cubic millimetre and the spleen became palpable. Dr. Nicholson showed X-ray films of the patient's extremities. He pointed out the striking periosteal reaction seen in the long bones. Only a limited autopsy was permitted. The general findings were consistent with the diagnosis of lymphatic leuchæmia, and sections were being made from the various organs. The long bones were not explored.

DR. BRUCE HALLOWS asked whether it was possible that the condition represented a combination of low-grade osteomyelitis and lymphatic leuchæmia.

DR. KEITH HALLAM said that leuchæmia and hæmorrhage were always associated in his mind. The association existed in the case under discussion. The radiological appearances in the long bones were attributable to subperiosteal hæmorrhages.

DR. ROBERT SOUTHBY thought that the onset of the illness following a fall was interesting. It recalled a case which occurred during the poliomyelitis epidemic in 1937. A child of similar age fell out of bed and bruised his thigh. He was sent home to bed with the diagnosis of muscular bruising, but was admitted to hospital two days later with the diagnosis of poliomyelitis. However, pains in other parts of the body developed. Swelling subsequently appeared on the wrist, and staphylococci were isolated from material taken from it. The final diagnosis was infective osteitis.

Dr. Nicholson, in reply, said that the condition could possibly be a combination of two lesions as Dr. Hallows had suggested. However, the X-ray findings appeared to be too advanced for osteomyelitis. The diagnosis of leuchæmia became reasonably clear as the illness progressed, and the post-mortem findings, such as they were, were in agreement with that view.

Correspondence.

THE FUTURE OF MEDICAL PRACTICE.

SIR: As one of the Service members whose ideas about medical organization are unknown to those at home, may I put forward my own conception of the difficulties involved.

It is obvious that the method of paying the profession is the vital point of difference. Difficulty in determining the correct method arises from two causes. Firstly, the medical profession is anxious that in any scheme adopted its members will be adequately remunerated. Secondly, there is a confused disagreement as to the principles that should determine remuneration. To eliminate the first cause of disagreement it is essential that in considering any scheme the salaries and other benefits should be set out from the start. To eliminate the second we must realize that difficulties impossible to overcome arise from trying to reconcile two different principles: the first, that remuneration should be related to the quantity and quality of services rendered; the second, that remuneration should be related to individual needs. As there is no interdependence between these two principles it is impossible to devise a system which will obey both.

The present system of private enterprise attempts to follow the first, and therefore fails to satisfy the second. However, neither does it satisfy the first, for it is impossible to relate remuneration to services. The benefits to individual and community of the medical services they receive cannot be evaluated in money alone. Nor can the discomforts and sacrifices which are part of our lives be evaluated only in money. While, in as much as these things can be evaluated in money, it is beyond the power of the community to repay the debt, and the present attempt to divide the money received by the profession according to services rendered results only in a farce; some of the most able members of the profession are quite inadequately paid and some of the least able are more than adequately paid.

The attempt to follow this principle then has been a failure. It is also wrong. It is right that we should ask to be adequately paid, but we should cease to regard wages and salaries as a reward for services and instead regard them as the fulfilment of a personal need. If our boast that ours is a profession with high ideals is to be based on fact, then one of those ideals should be that every man is required to give of his best as a duty and without thought of monetary reward; and it as wrong to pay a person for doing his duty as it is to pay him for being honest.

This means that we must adopt the second principle and that remuneration must be related to individual needs. It is obvious that only in a salaried system in which after a probationary period there is an equal basic salary for all with added allowances (marriage and family allowances, free holidays, study leave, research grants, sickness and disability benefits *et cetera*) is this fulfilled. Redistribution of the present sums paid in medical fees and salaries would enable such pay and allowances to be set at an adequate level.

Many will claim that we cannot do without a gain motive and that even in a salaried scheme initiative must be encouraged by providing a rising scale of salaries with promotion. Now if all salaries are adequate for personal needs the retention of "gain motive" can function in only two ways: (i) in reverse as a penalty for careless or bad work, and (ii) as a bribe to men to undertake work not otherwise attractive. In regard to (i), while it is admitted that safeguards against bad work even in the form of monetary penalties are necessary in any scheme, it is also true that such penalties should be devised as penalties and not as the withdrawal of rewards. In regard to (ii), this is the laziest way of making positions attractive. Where discomforts and disadvantages exist they should be studied and if possible eliminated, and if unavoidable should be shared evenly.

Finally, in practice the "gain motive" leads to positive evils: it encourages practitioners to undertake excessive commitments, to undertake unnecessary work, and work of which they are not capable, it discourages men from taking necessary holidays and study leave, and encourages nepotism and penalizes the doctor who puts the interests of his patients first.

The "gain motive" therefore should be rigidly excluded and its place taken by more just penalties and rewards. If a salaried service were organized in a system of group practices, the group being not less than eight in number and the patient being given choice of doctor, any doctor found unsuitable by the patient would lose his patients to the rest. If then the group had the right to reject any member who could not hold his share of patients this would be a sufficient deterrent on bad or careless work. On the other hand it would always be in the interests of the group to encourage good service and retain good members. In this way the disciplinary power would be where it should be, in the hands of the members of the profession.

On the other hand good work should be rewarded by the honour it brings and by the opportunity to follow one's own preferences in work, a more fitting incentive than the lure of money.

No doubt there would be opposition from some of the highly paid members of the profession to the equalization of salaries, but if it is made plain that this does not imply that all men are considered equal in ability and value of service, then it is by no means a levelling principle. And if all salaries and allowances are adequate and a majority of medical men are content with an adequate remuneration, there is no need to consider the desires of a minority which puts profit before service, especially in our present age of want.

If the principles stated above are accepted it follows that neither a *per capita* system nor a fee-for-service system is sound, as in neither case is there any relation to individual needs. On the other hand many objections to a salaried system, such as loss of freedom, and of incentive to improvement, bureaucratic control, absence of penalties for bad work, loss of freedom of choice, are really irrelevant. The only questions to be answered in determining the system of payment are "What is the object of payment?" and "How can it be done?". If we are honest and if we believe in the nobility of disinterested service we cannot avoid the conclusions I have drawn above. The next step then is: "As our service is to be a salaried one, what are the difficulties and dangers of such and how can they be controlled?" Under a system of group practice, internal discipline and decentralized control, I am sure all difficulties that have been brought against a salaried system could be solved, but I have already written too long to examine them in detail here.

There has previously been much opposition to a salaried system, but I think most medical men would welcome it if it provided an adequate salary and security. Those who believe as I do should therefore commence now to elaborate in detail a system that would be satisfactory in the conditions of service.

Only a system that appeals to the best in us and yet controls the worst is sound, and it is only by eliminating the lure of money that such a system can be devised.

Yours, etc.,

JAMES A. INGLIS, Captain,
R.A.M.C.

General Hospital,
Persia and Iraq Force,
May 12, 1943.

SIR: With great interest I have followed the reports and correspondence discussing the future of the medical profession. It is with still greater interest and appreciation that I have found the majority of my colleagues preferring freedom and voting against the adoption of salaried safety.

The profession, having arrived at this expression of a fundamental, stands on the brink of uncertainty and wonders "how". How is it to achieve that freedom in a State that appears to be endeavouring to conscript its services?

The economic systems of the world and of our country are changing under our eyes, and until some sort of stability emerges from these changes, it will be impossible to answer "how". It therefore behoves the profession to turn its attention to the larger issue and to solve its own problem by application to the problem as a whole.

The change of system is from the unrestricted capitalism of our fathers' times to a talked of socialization of our sons'

times, but there are extremes, and in extremes there is no stability.

If the majority of men desire stability, they must find a middle path.

Actually all men desire some degree of stability, even the freedom-loving doctor, at least the stability provided by assured food and shelter, and that much gives freedom for other things. There are few men who, assured of the one, would not be willing to risk all his remaining energy to gain those other things.

Health is one of the things we all seek, and health in any sphere, mental, emotional or physical, demands exercise in each of these functions without neglect of the others. If mental health depends on clear thinking, emotional health depends on freedom from fear, and both depend on physical health which in its turn requires sufficient exercise for the body. But in recent times of keen competition men have been chained to soul-destroying piecework or, in the search for efficiency, they have worked long hours at desk or bench. In the one case tiring the brain and spoiling the body by lack of exercise, in the other fatiguing the body whilst allowing the brain to atrophy.

With these various ideas in mind I feel that the time has come to bring forward for discussion a proposal that would provide a middle path: "that it be made incumbent for every person to perform two occupations; one labouring, manual, the other involving chiefly the mental faculties". Thus everyone would perform some such work as pick and shovel, chopping wood, tilling the soil, washing up, sweeping, minding the baby for, say, two hours per day (ten hours per week or perhaps three shifts of three hours), and the remainder of his working day at his other occupation of entering ledgers, studying at a university, being a doctor or lawyer or a politician, using a typewriter, being a mother, directing companies.

The manual labour would ensure exercise, thus making for health, and the mixing of all classes, thus making for mutual understanding; and the manual labour could be made the subject of a maintenance wage for every man and woman.

The mental work would be each person's outlet according to his ability and an opportunity to earn comfort and the happiness of achievement.

To expand this subject a little further:

With the cooperation of everyone, man and woman, between the ages of sixteen and sixty, putting their shoulder to the job for a few hours per week (or a few days per month, or a few weeks per year), this world could be made the garden it should be.

I said "be made encumbent", for in the beginning of such a scheme legal compulsion would be necessary for some, with the doctors classifying as 50% or 75% *et cetera* those who were not capable of a 100% physical effort. Later, if the scheme proved successful, custom would provide sufficient incentive to the majority to conform.

The classification of work that should be considered labour and what a mental occupation, and the necessary balance between the two, together with what the nation could afford as a maintenance wage would form a problem for the economists.

I consider that this proposal would simplify all insurance schemes, such as basic wages out of work, old-age and sickness pensions, maternity allowances *et cetera*, for I would suggest that the maintenance wage be paid to everyone from the cradle to the grave, the hale and hearty and the sick.

On the one end of the scale it would mean that the mother would receive sufficient to rear her children, and it would be a great incentive to overcome the problem of a low birth rate, it would provide basic means for the young couple at the time when they most need money for their home and family as distinct from the comforts preferred by advancing age.

At the other end of the scale I would not propose that the man over sixty be refused work and paid a pension, but rather that he be paid his maintenance wage and be permitted to earn a further wage if he so desire—thus would he be encouraged not to ruin his health in his youth, but to retain his faculties and earn the double issue for the comfort of his old age.

This proposal has many implications, and I would like to see it discussed from the point of view of its immediate impact upon each individual himself.

Yours, etc.,

CLIVE C. SANDS.

119, Marsden Street,
Parramatta,
New South Wales.
August 11, 1943.

SENSITIZATION TO CARROT (EXTERNAL CONTACT).

SIR: Since reading Dr. Molesworth's letter in THE MEDICAL JOURNAL OF AUSTRALIA on this subject, I have seen a patient sensitive to carrots.

On July 30, 1943, Miss M.S., aged twenty-two years, consulted me suffering from dermatitis of the hands and forearms. She came from the country two months ago, since when she has been working on the "carrot rail" in a Sydney condiment factory cleaning and scraping carrots.

I tested her skin with slices of carrot root, carrot stalk and carrot leaf bought at a local shop, also with carrot root which she brought from the factory. Within twenty-four hours she showed marked sensitivity to all but carrot leaf.

The dermatitis is clearing under a simple ointment containing crude coal tar, zinc oxide, salicylic acid and *Pulvis Amyli*. She should return to work in two weeks' time—that is, to any work other than handling carrots.

Questioned as to her reaction after eating carrots, she replied that she never touched carrots "off duty".

Yours, etc.,

KEVIN BYRNE.

"Lakemba Cottage",
Lakemba,
New South Wales.
August 7, 1943.

RETINAL BURNS FROM THE SOLAR ECLIPSE.

SIR: Following the recent solar eclipse on August 1, 1943, I have seen three eyes affected as a result of looking, without dark glasses, at the partially eclipsed sun.

Although this phenomenon is well known to ophthalmologists and, I suppose, to all doctors, I would like to report these cases because of the uniformity of the fundus picture.

The first case was that of Mr. T.W., aged thirty, who reported to me on Saturday, August 7, 1943; his right eye was normal, but he complained of seeing a round grey spot in the centre of the direct visual field of his left eye. His vision was $^6/_6$ in the right eye and $^6/_9$ in the left eye, but he could not see the central two letters of the $^6/_9$ line, which area was occupied by a round, grey spot. On examination of the fundi, the right eye was normal, but at the left macula there was a small white circle surrounded by a bright red rim.

The second case, reported to me on Monday, August 9, 1943, was that of Miss A.M., aged fifteen, whose mother informed me that despite repeated warnings not to look at the eclipse, she had ployed tennis on that day, and from time to time during the afternoon had looked at the eclipse approximately five times. Her visual acuity was $^6/_9$ in each eye, but she had to move her head about to see all the letters. If she did not move her head about she was not able to see the centre of the $^6/_9$ line, and if she looked at three numbers in a row she would miss the central number. On examination of the fundi, at each macula there was seen a white, round area surrounded by a scarlet rim.

I have not seen many cases of eclipse retinal burns, but the ones I have seen have all presented the same fundus picture.

Yours, etc.,

ARTHUR D'OMBRAIN.

Bank Chambers,
17, Bolton Street,
Newcastle.
August 14, 1943.

Naval, Military and Air Force.

APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Number 184, of August 19, 1943.

CITIZEN NAVAL FORCES OF THE COMMONWEALTH.

Royal Australian Naval Reserve.

Appointment.—Norman Alfred Richards is appointed Surgeon Lieutenant, dated 4th June, 1943.

ROYAL AUSTRALIAN AIR FORCE.

Citizen Air Force: Medical Branch.

The following are transferred from the Reserve with effect from the dates indicated: (Flight Lieutenants) H. G. Norton

(266732), A. B. Yuille (267345), W. J. Griffiths (287276), 6th June, 1943; J. C. Trinca (256389), J. P. L. Noonan (256716), W. M. Barrett (256051), E. L. Bird (267089), C. M. Maxwell (266828), G. N. Barsden (297387), 7th June, 1943.

The following Squadron Leaders are granted the acting rank of Wing Commander whilst occupying Wing Commander posts, with effect from 1st June, 1943: E. O. Marks (1166), A. S. De B. Cocks (281255).

The probationary appointments of the following Flight Lieutenants are confirmed: J. A. Conquest (267263), J. G. Shelton (255945), H. McK. Carey (267262).

Reserve: Medical Branch.

Flight Lieutenant A. C. Herrington (6327) is transferred from the Active List (part-time duties) with effect from 18th February, 1943.—(Ex. Min. No. 202—Approved 16th August, 1943.)

Obituary.

PAUL WARD FARMER.

We regret to announce the death of Dr. Paul Ward Farmer, which occurred on August 19, 1943, at Melbourne.

A MEMORIAL TO THE LATE LIONEL OXBORROW BETTS.

A MOVEMENT has been started in Adelaide to perpetuate the memory of the late Dr. Lionel Oxborrow Betts and his work for crippled children. A committee has been formed; the Lord Mayor of Adelaide is chairman and Mr. T. C. Stott, M.P., is honorary secretary. A sun playroom will be erected at Escourt House Crippled Children's Home and it will be known as the "Dr. Betts Memorial Room". Donations may be sent to Box 501, G.P.O., Adelaide.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Donaldson, Edgar John, M.B., B.S., 1943 (Univ. Sydney), Sydney Hospital, Sydney.

Lilley, Ian Mitford, M.B., B.S., 1943 (Univ. Sydney), 267076, Flight-Lieutenant Lilley, I. M., Medical Section, Royal Australian Air Force, Sandgate, Queensland.

Cameron, Ralph George Bryant, M.B., 1938 (Univ. Sydney), Major Cameron, R. G. B., A.A.M.C., 102 Australian Casualty Clearing Station, Australia.

The undermentioned have applied for election as members of the Tasmanian Branch of the British Medical Association:

Pryde, Elizabeth Weston, M.B., B.S., 1943 (Univ. Melbourne), Launceston General Hospital, Launceston.

Lancaster, Christopher, M.B., B.S., 1943 (Univ. Melbourne), Royal Hobart Hospital, Hobart.

Godfrey-Smith, Roland Anthony, M.B., B.S., 1943 (Univ. Sydney), Launceston General Hospital, Launceston.

The undermentioned have applied for election as members of the South Australian Branch of the British Medical Association:

Yates, Percy Cocker, M.B., B.S., 1942 (Univ. Adelaide), Box 4, Busselton, Western Australia.

Lloyd, Hugh Arthur, M.B., B.S., 1940 (Univ. Adelaide), Tailem Bend.

The undermentioned has been elected a member of the South Australian Branch of the British Medical Association:

Kerr Grant, Ronald, M.B., B.S., 1942 (Univ. Adelaide), 56, Fourth Avenue, Saint Peters.

Medical Appointments.

Dr. Lindon Archdall Langley, pursuant to the provisions of the *Lunacy Acts* of Victoria, has been appointed Superintendent (acting) of the Mental Hospital, Ararat, Victoria.

Diary for the Month.

SEPT. 1.—Victorian Branch, B.M.A.: Branch.
SEPT. 1.—Western Australian Branch, B.M.A.: Council.
SEPT. 2.—New South Wales Branch, B.M.A.: Special Groups Committee.
SEPT. 2.—South Australian Branch, B.M.A.: Council.
SEPT. 3.—Queensland Branch, B.M.A.: Branch (Jackson Lecture).
SEPT. 7.—New South Wales Branch, B.M.A.: Organization and Science Committee.
SEPT. 10.—Queensland Branch, B.M.A.: Council.
SEPT. 14.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
SEPT. 14.—Tasmanian Branch, B.M.A.: Branch.
SEPT. 15.—Western Australian Branch, B.M.A.: Branch.
SEPT. 21.—New South Wales Branch, B.M.A.: Ethics Committee.
SEPT. 22.—Victorian Branch, B.M.A.: Council.
SEPT. 23.—New South Wales Branch, B.M.A.: Clinical Meeting.
SEPT. 24.—Queensland Branch, B.M.A.: Council.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phœnix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia.

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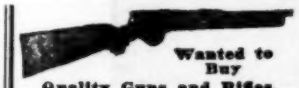

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Anæsthesia in Naval Practice
The Surgical Clinics of North America,
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